

EZEKIEL TO EINSTEIN

EZEKIEL *to* EINSTEIN

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Israel's Gifts to Science and Invention

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By FRANCIS J. OPPENHEIMER

with a Foreword by

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To My Mother

ELIZABETH GILMORE OPPENHEIMER

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FOREWORD



The Jews are an ancient people whose contributions to western civilization have not yet been sufficiently estimated. "'Tis a little people," Dr. Joseph Jacobs, eminent Jewish scholar was wont to remark, "but it has done great things." This present study by Francis J. Oppenheimer tells briefly but colorfully, some of the "great things" Jews have done for humanity through speculative achievements in all spheres of science.

His fast-moving paragraphs demonstrate that the Jewish claim to a share in modern life and the advancement of civilization, is not based on their contributions to the past alone; it is motivated by their continuous capacity for contributing valuable elements to that life. The Jews are persistent in their endeavors to aid progress with their inventive and explorative discoveries. All this often under trying and difficult circumstances, to express it mildly.

This is not the first time that Mr. Oppenheimer has taken up the cudgels for the Jews. When, some three decades ago, the then Police Commissioner of the City of New York accused them of a greater share in crime than the general population, he completely annihilated the irresponsible charge with his brilliant analyses of crime statistics that brought about an immediate retraction from that city official,

Once again Mr. Oppenheimer redeems the good name and fame of Israel. This time he has engaged himself with a constructive task and his excellent spade work shows him to be as successful in evaluation as in refutation. The startling array of facts he has unearthed, some of them of front-page news significance, are very definite answers to the often-repeated complaint of anti-Semitism that it "cannot see in anything that has been said or written, so far, any proof that this 'remarkable race' has contributed anything to modern science and invention or that the world is not indebted to 'Israel' for any of those tangible things that have revolutionized it."

He also shows how gratuitous is the lament that "If all the brain power of the Jews had only been used to turn a mill wheel," civilization would have been so much richer. The "little people" are shown in the subsequent pages to have turned many a wheel of progress, to have staked many new outposts in the advancement of the sciences. His provocative analogies between the first utterances of the Biblical Sages and the last results of our scientific laboratories, show rare vision and marked originality.

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PROBLEMS OF IDENTIFICATION



History's perpetual admonition to the Jew has been "Move on!" Small wonder this man without an abiding place anywhere in the world has been unable to keep consistent records of his amazing achievements, small wonder that most living Jews are unfamiliar with the epic roles played by their own great scientists and inventors, many of whose very names have been permitted to slip through the net of history and racial memory.

How many students of history are there, how many historians of science, who even suspect the extent to which civilization is a pensioner of this sad-eyed social outcast who only recently emerged from the foul Ghetto, who only recently was permitted to tear off his accursed yellow badge, to throw away his shameful fool's cap? How many Jews themselves realize the number of scientific triumphs that are directly traceable to the ingenious inventiveness of their own people?

Every time you send a wireless message, pick up a telephone receiver, listen to what comes out of your radio; every time you put a symphony record on the gramophone, drive an automobile or board an aeroplane or go up in a dirigible, you are insensibly paying a tribute to the scientific genius of the modern Jew whose forefathers invented God for ancient man.

The task, however, of telling the story of the Jew in science is far from a simple one, startling as are the number and importance of the historic "firsts" he has given to civilization. Abundant as are the facts, they somehow refuse to fall into regular chronological sequences, to jell into conventionally-organized narrative. Mists of uncertainty so frequently obscure the identity of the scientific Jew that he sometimes becomes dimmed to somewhat of an historic spectre.

Questions, too, pop into mind at every turn of the road, challenges provocative of other baffling questions. "What is a Jew?" "Has there ever been a Jewish nation?" "Are Israel and Judaism one and the same thing?" And, prize question of them all, "Is the Jew a Jew?"

Correct racial identification is always problem number one in any discussion of the Jews. It is the most persistent of all the problems confronting any of their would-be interpreters. In this particular exploration it easily ranks as an obstacle, with the Jew's own lack of historic records. "While it is comparatively easy to determine the nationality of scientific men and their parents," Professor James McKean Cattell, editor of *American Men of Science*, says in his own recent attempt to analyse the origins of Jewish-American scientists, "it is almost impossible to identify their race."

Despite the fact that the world never lets the Jew forget for one moment that he is a Jew, Jewish scientists are one with all other scientists in their sincere wish to be identified as such. (The pedigrees of men

of science, they feel, are their accomplishments in their given fields of research, not their racial origins, not their religious beliefs. Which is another way of saying that no light on this old puzzle of personalities is to be expected from these laboratory men absorbed with their own more important abstract problems.

It might even be questioned whether the Jews ever were a pure race. Josephus does claim to have seen genealogical rolls in the Temple, but as a historian, this chronicler, who is himself not even mentioned by the ancient Jews, is not particularly reliable. Ezra sincerely believed he had established racial purity for his co-religionists with his crude genealogical tables, but the fact is that at almost the exact moment he was organizing these tribal trees, his own people either were dwellers in Babylonia or drifters back to Egypt where there probably was plenty of "paste" as the Talmudists in the Middle Ages referred to inter-marriage.

Another circumstance preventing racial identification from being either easy or absolutely scientific is the Jews' own penchant for assimilation, despite everything that has been written about them to the contrary. Recently returned travelers from China report that the Chinese Jews they met in that far-off country were more Chinese in dress, appearance, customs and manners, than the native Chinese. It is the same with the Beni Israel, or Black Jews of Bombay, the Falashas of northern Africa.

Few European Jews are able to understand the Indo-Arabic language spoken by the Yemenites, and

the only explorers yet to pierce the desert wastes where these hundred thousand stepchildren of Israel today eke out their miserable existences, are Christian missionaries. If there is anything harder than distinguishing a Russian Jew from a native Russian, it is distinguishing a German Jew from a native German. Only an American Jewess could possess a proper name like "Sadie American," only an American Jew could call himself "Columbus Smith," only a French Jew would use a surname like "France." One of the most popular proper names with German Jews is "Deutsch."

Proper names, however, are far from being dependable clues when it comes to identifying Jews. "Miriam," for instance, has had at least a hundred historic transmutations. So, for that matter, have many of the twenty-five hundred other names in ancient Scripture. Paul's Jewish associates knew him as Saul, carrying this confusion right down through the New Testament. From the captivity on, the Jews slavishly adopted the names of their captors. Before that time they were known as the "sons of," or else identified merely as belonging to the "house of."

In the Middle Ages the wanderers merged their tribal and family names, making it harder, if anything, to find the Jew behind his complex cognomens. A typical example: Mose *Ben* (italicized word is the Hebrew for "son of") Samuel Ha-Kohen (the last implying membership in the priesthood) Gikatila. Their frequent substitution of *Ibn* (the Arabic for "son of") only complicated things still more in this

dark period. The very earliest Hebrew names, on the other hand, were solitary, personal, like Abraham, Isaac, Jacob.

Because of the outlandish conjunctures of their given and surnames in the seventeenth and eighteenth centuries, the governments of Russia, Prussia and Poland compelled the Jews to reassume their original Hebrew names. Those Polish and German Jews who recently migrated to Palestine are resurrecting their ancient Hebraic names, having left their European ones behind with the rest of their worldly possessions.

Centuries ago, the ancestors of these same Jews now scurrying to the east gratefully assumed the names of the towns and villages wherein they had found temporary asylum. Their historic nemesis was then pursuing them from the other direction. Because of the fact that the New Turkey does not permit Jews to retain their real Hebrew names, it is difficult to determine whether Kemal Ataturk, born Mustapha Kemal, is of Jewish ancestry, as has been alleged time and time again. It is quite like trying to prove that a Ley was a Levy, or that every Levy is a Jew, an especially difficult task due to the fact that a large number of American negroes today boast this ancient Hebraic name. In the city of Boston and on the island of Madagascar, groups of negroes call themselves "Seed of Abraham."

Questions may be the only answer this perennial riddle will ever get, for many of those Jews now fleeing from their beloved homelands in middle Europe fear to tell anyone their right names. They will

not speak, they dare not talk. Fear has so benumbed the German Jews that many of them are mortally afraid to confess to their true origin. Fear has so benumbed these "little people" who have always been strangers to everyone else, that they have at last become strangers even to one another.

Persistent inquiry may be the one, the only way to remove the many Protean masks from the features of these frightened pawns of dictators, these wanderers in perpetuum, whose thorny paths have crossed and recrossed all the ancient civilizations.

The deeper the fascinating research progresses the stronger grows an impression that the last word is yet to be said fixing the race of many of the great ones of the world. "Was Christopher Columbus a Catalan Jew?" The available facts indicate that he might very well have been one. They also explain why those Sorbonne and Oxford University Professors like Madariaga, himself a Spaniard, are so thoroughly convinced that he was, why Arthur Brisbane, the popular newspaper editor, was forever writing columns on "Columbus, the Jew."

Isaac Abranavel, not Queen Isabella, financed his voyage across the Atlantic. Columbus made the first report of his historic discovery to Louis de Santangel and Gabriel Sanchez, both Jews. Jews for the most part made up his crew. Bernal, ship's captain, was a Jew. One of his boats was named after a Jew. Columbus used nautical tables prepared by one Jew, translated into Spanish and Latin by another, and printed by still another. Even the instruments of ob-

ervation he employed as he ploughed the chartless deep were Jewish inventions.

Was Rembrandt, the painter, part Jew? Many facts point to this possibility. He was forever painting rabbis, forever portraying Jewish men and women with an insight that no acknowledged Jewish painter has yet shown. In all his own self-portraits he himself looks as much the Jewish patriarch as do Wagner, Columbus and Gutenberg. Michelangelo, who created Moses and David and Adam in stone beauty, was accused by some of his contemporaries of being a Jew.

Was the composer, Wagner, a Jew? Many facts indicate that he was far from being pure German, despite his hysterical fulminations against the Jews. Was Browning, the poet, of Jewish descent? George Eliot, Cervantes, d'Annunzio? Vincente Blasco Ibanez, the Spanish novelist, is said to have had Jewish origins, also the majority of those Spaniards and South Americans whose proper names terminate in "ez."

The list of uncognizable Jews could be extended to uncover a surprisingly large number of famous names in science, in the fine arts and in the professions. Gutenberg's real name is said to have been Gensfleisch, Gutenberg being the name of the town from which his mother hailed. David of Caderousse who helped him perfect his type and Manuel Vital who assisted with his printing, both were Jews. The Jews of Elmheim supplied him with the money he needed to complete his experiments. Gutenberg's first book was the *Bible*, the precious literary depository of the ancient people.

Jews have always been interested in the arrangement and composition of the alphabet. Recent archeological discoveries in the region of Mount Sinai disclose that they possessed an alphabet over four thousand years ago. While "Greek tradition ascribed the origin of their own writing to Cadmus, the Phoenician, Cadmus is merely the Hebrew word Kadmi, 'the man from the east,'" according to *The Universal Jewish Encyclopedia*. Martin Sprengling's studies of *The Alphabet, Its Rise and Development from the Sinai Inscriptions*, quite clearly shows that these inscriptions "form a link between the hieroglyphic writings of the Egyptians and the Semitic alphabet which was used by the Egyptians and eventually carried by the Phoenicians to the western world."

Five hundred years before Gensfleisch, another Jew, Shabetai Donnolo, who had a variety of Jewish and Arabic names, tried to explain Creation itself with the aid of the Hebrew alphabet. Some of his precious manuscripts are on exhibition in the Florentine library.

Dr. Ladislaus Atjay, in his *The Jewish Mirror*, has attempted to establish the Jewish descent of some reigning families of Europe, the Hapsburgs, the Bonapartes, the Romanoffs and Hohenzollerns, seventy royal families in fact. This theological professor also includes among his astonishing identifications the names of many bishops. *The Sigilla Veri*, an anti-Semitic encyclopedia, makes still more startling disclosures along this line. The former premier of

Hungary, Bela Imredi, only discovered that he himself had a Jewish grandmother after he had formulated his own anti-Jewish proposals, and the mother of General Field Marshal Erhard Milch, the engineering genius of the German Air Force, had to testify that her son was "illegitimate," because both she and his father are Jews.

True racial identification becomes doubly difficult because of those so-called "secret Jews" whom the Spaniards designated by the uncomplimentary term "Marranos." It wasn't a very healthy thing to be a Jew during the fifteenth century in Spain, nor in the fourteenth, nor in the sixteenth, for that matter, nor in any number of other centuries in any number of other lands. When it is remembered that one ecclesiastical fanatic alone ordered nine thousand of them burned at the stake, it is easy to understand why these earth-loving Spanish Jews resorted to every deception.

Cecil Roth, an English Jew who made a study of these hapless racial masqueraders, estimates that there were as many as one hundred thousand Marranos. While his figure may be high, it is certainly no inexactitude of fact to state that many of the world's most noted scientific men may stem back to unknown Jewish forebears who themselves tried to forget that they came from Jewish ancestry.

Some of these wretched Marranos, he relates, got as far away from their tormentors as China, became Chinese, or thought they had, until they inadvertently encountered some Hebraic symbol, say, a Hebrew

Scroll, or a six-pointed Star of David or a seven-branched candlestick, a Menorah. The mere sight of these things seemed to create atavistic flashbacks in their subconsciousness, causing them to realize to their Chinese amazement, that although their daily lives and daily thoughts and even their daily appearances were very different from those of the ancient Israelites, their blood still possessed what du Maurier was wont to identify as "the precious drop."

These starved Spanish refugees in other countries turned into great musicians. Some of them, paradoxically enough, became important ecclesiastical dignitaries. "Master James," head of the nautical school in Portugal where Columbus went for advice, was called "the map Jew" and "the compass Jew" by Prince Henry. His real name was Judah Cresques. To escape a riot he assumed the name of James Ribes. Other Jews who would not compromise their faith even to save their skin managed somehow to work their way back to Egypt, the dark land from which their equally joyless ancestors had fled thousands of years back. A number of these driven Jews got a foothold in Holland, in England and in Italy where they established new communities which have contributed to the world many great scientists, inventors, artists and poets.

Spain might have claimed Spinoza for its own. Instead, he is considered and called a "Hollander" by the Jews merely because he dressed like the people with whom destiny forced him to dwell. Even the noted Jewish scholar, Joseph Jacobs, referred thus to

him. In looks, Spinoza was more the Spaniard than was Torquemada who drove the tribe of the "blessed one" from their beloved native country.

Other Marranos penetrated into recesses of the Orient, wore the fez of the Turk, the sarong of the Hindu, the pigtail of the Chinese. (The secrets of their talents,) however, soon became clear to their new countrymen even if their race did not. In southern India these secret Jews became more Hindu than the Hindus both in their customs and dress. In Morocco and in Turkey, they took on an entirely new protective coloring, "the mask of Islam," prostrating their wracked bodies and tormented souls before Allah the All Powerful.

Despite all their handicaps, all their hardships, these fear-haunted ones went ahead in literature—in medicine and in the humanities, adding honorable names to whatever country took them in. Felipe Rodriguez, one of the greatest Spanish practitioners of medicine of his period and physician to Marie de Medicis, was named Elijah Montalto by his Jewish parents. Abraham Zacut, whose marine tables enabled Columbus to sail unknown oceans with impunity, had to disguise himself with the name Manuel Alvaroes. Not hard to understand is Heine's bitter complaint that it was a misfortune to be a Jew. In his *Dreamers of the Ghetto*, Israel Zangwill tells the tragic story of a sixteenth century Jewish scientific genius, "Uriel Acosta," who had to change his name that he might be permitted the breath of life.

The difficulties of correctly identifying Jewish sci-

entists are as nothing in comparison with the difficulties experienced by the "little people" themselves merely to survive. Throughout the ages they have been strangers within the gates. They've been slaves to practically every nation. They've been driven out of practically every country. They've tried to live every other man's life but their own. They've tried to adapt themselves to the jungles of India, to the mountains of Africa. Six times the ancient Jews were in bondage. Today, again, they have scarcely a place in all the world to lay their troubled heads; not even Palestine, the Holy Land, can give them sanctuary.

If "Einstein made a universe," as Shaw claims, he certainly has had a lot of trouble on this little speck in a pluralistic universe as we call the earth, for as long as this questor for a universal scientific law can remember, he has been asked to show citizenship papers. A man without a country most of his life, Einstein has been shuttled back and forth from Italy to Germany, to Switzerland, to Czechoslovakia.

Portions of the Bible were written in captivity by the waters of Babylon, and many literary masterpieces have come out of the Ghettos. When the Roman Emperor Constantine closed the Jewish schools in Palestine, others were immediately opened in Babylonia. During the Spanish night of terror, the Marranos studied their Torah behind closed shutters, by small lighted tapers, for the "little people" remained Jews at heart despite the lip service they gave to the Inquisitors. Dispersed again today, the very first thing they did on arriving in England and the United States,

without either baggage or money, was to open "universities in exile." But then fifty years after Hadrian had made a waste of Judea as Hitler has since of Poland, little Jewish schools appeared in the desert, for the Jews never sold their Platos into slavery, never made their Socrates' drink hemlock.

In *Thank You, Hitler*, Bruce Bliven, *The New Republic*, assembles some names of the great Jewish scientists, artists and playwrights who were forced to emigrate to this country; Dr. Wilhelm Frei, famous dermatologist, Dr. Richard Goldsmidt, brilliant biologist and genetist, known for his work in the field of sex determination, Dr. Carl Lange, bacteriologist; and Dr. Siegfried Loewe, pharmacologist, famous for his work on the male sex hormone. Continuing, he comments: "I have on my desk the names of at least fifty other distinguished German scholars now resident in the United States. Their cultural contribution is of course beyond any possible valuation in dollars and cents, but even if we look at the matter merely as capitalized earning power, the wealth they represent goes a long way toward paying Germany's defaulted post-war debts to us."

More recently the professors of the Physics Department of Columbia University asserted, according to William L. Laurence, science reporter of *The New York Times*, "Germany may regret her act of having sent into exile Dr. Lise Meitner, who with Professor Hahn, made the first observations that led to the discovery of the fountain-head of atomic energy that German scientists are so feverishly working to

harness.... Had Germany then realized the importance of their findings, it is highly probable she would have kept this new 'Philosopher's Stone' a strict military secret and possibly later would have surprised the world with it." The writer was referring to the vast power source in atomic energy contained in a natural substance which has just been newly isolated by physicists connected with this university. Lise Meitner and Professor Hahn were co-discoverers of protaktinium.

TRAGIC HANDICAPS



Moses Maimonides, whose octocentenary recently was celebrated by scientists throughout the world, lived the life of a hunted rabbit. Driven from Spain which he had always considered his homeland, this gifted man found himself in a strange country, Egypt. It wasn't long, however, before he became Chief Physician to Saladin's Vizier. There still exists in Fez a curious old ruin which is pointed out to tourists as the house from which "the second Moses" had to flee in the dead of the night.

This many-sided genius of the twelfth century is credited with the authorship of "a physician's oath" and a book on diet written at a time when scarcely any attention was paid to this subject by any doctor. Richard the Lion-Hearted tried to get Maimonides to become his court physician.

Spinoza polished lenses to keep body and soul together. In his evenings, he worked on the immortal masterpieces which won such extravagant praise from Goethe, Germany's great poet-scientist. Moses Mendelssohn, the "enlightener," who closed an historic epoch for his people and opened a new era for the Jews, never knew a day's health. Lessing has immortalized "the German Plato," as Mendelssohn was called, in his play *Nathan the Wise*.

Listen to him breaking a window into the Ghetto

soul, "Commands of God must be reconciled with what reason teaches about him according to eternally true principles. It certainly is not a true principle of religion that reason must be subordinate to the claims of revelation. Has God not given us reason as well as revelation? Is not that which reason once admits as true, eternal and necessary truth, and just as infallible as the God-head, its author?"

Though practically blind, Victor Aptowitzer continues his philological studies today abroad. So did Moses Gaster, a foremost authority on the folklore of many a people. How this sightless Rumanian Zionist was able to turn out one charming piece of literature after another, nobody can explain.

Herschel, the Jew who gave man another planet, never had enough to eat. To earn the rent for his cheaply furnished room containing a cot and huge telescope (the largest then in Europe), he was forced to play an oboe in a "mud gutter" band. Notwithstanding the fact that it was so cold in his bare little room that Herschel's feet froze to the floor, this poverty-stricken inventor polished his own seven-foot mirror. Like Spinoza before him he ground his own lenses. The paths of the celestial bodies were as familiar to this undernourished astronomer as were the dirty streets of London, the city in which he had made his home. All through the night "when deep sleep falleth on man," (Job) this star-drunk man would sweep the heavens with his homemade telescope.

Sometimes hungry, exhausted, the watcher would fall asleep. His devoted sister, Caroline, would then

put him to bed, take up the solitary vigil beside his telescope till dawn flooded their mean surroundings. It was Caroline's great faith in her brother that made it possible for the creator of modern stellar astronomy to look farther into space than any other man. "I hardly know which to admire most," Benjamin Franklin, a frequent visitor of this eighteenth-century astronomer, who discovered twenty-five hundred nebulae and star clusters, commented at the time, "the wonderful discoveries made by Herschel, or the indefatigable ingenuity by which he has been able to make them."

Night after night Herschel searched the mysteries of the heavens. One lonely night when the rest of London was fast asleep, his heart almost stood still. He had discovered Uranus, that sea-green planet two billion miles away whose very existence had never been suspected by astronomers of old. Hermann Goldschmidt has since discovered fourteen more minor planets, Karl Schwarzschild directed the famous Potsdam observatory, Dr. Louis Berman is performing notable work at Lick Observatory, Dr. Frank Schlesinger at Yale University.

Emil Berliner, one of the greatest inventors of our own times, had quite as tough a time of it as did Herschel before him. This German-Jewish immigrant hadn't a nickel to his name when he landed at Ellis Island some fifty years ago. He hustled about, got himself a job washing bottles. At night he attended classes at Cooper Institute in New York City. With every penny he could scrape together he bought

second-hand books on science. Old book-sellers on Fourth Avenue, New York City, still remember the eager-eyed lad who grubbed through their dusty stacks for scientific text books.

It was Berliner's transmitter that made commercial telephony possible. "Berliner's contributions to science are not restricted in their beneficence or in their origin to America alone," Herbert Hoover, who was known as "the great engineer," announces in his preface to the life of *Emil Berliner*. "There are no national boundaries to science."

What Ben Franklin said about Herschel could be said as well about Berliner, for all that this great benefactor of the human race had out of which to invent the microphone, that plain-looking mechanical gadget that made radio broadcasting possible, was a child's drum, a sewing needle he probably picked up in the gutter, a used guitar string, and a promise from his landlady that she would remove the Monday wash from the lines so that he could try out his home-made "mike." Berliner's original Soap Box Transmitter may be seen in the Smithsonian Institute, to which it was loaned by the American Bell Telephone Company. This crude, loose transmitter proved that the air was a factor in microphonic action as Mond, another great Jewish scientist, had proved, before Berliner, the almost equally startling scientific fact that a metal could exist in the form of a gas.

No wonder those sight-seeing politicians who had traveled to the capital from all the states, forgot to attend the inauguration of Rutherford B. Hayes, and

cluttered together in the back yard of this Washington rooming-house where scientific history was being made between wash lines. And the famous poster showing a fox terrier cocking his ear to "His Master's Voice" on the Victrola gramophone record is not listening to Edison as is generally assumed, but to Emil Berliner, whose invention of the lateral cut discs made it possible for science to etch the human voice. In the Smithsonian Institute a case of exhibits is devoted to the first gramophone record, 1887, the first complete gramophone disc, the first pressed disc record and the first commercial records pressed into hard rubber.

This Jew who also invented the instrument through which wireless music and unseen news bulletins flood our homes from morning until night had no Foundation behind him. Berliner was so poor, in fact, that he was unable to get a lawyer for his original patent application for his telephone transmitter. He often went to bed hungry.

Waldemar Kaemffert, science editor of *The New York Times*, says, "It needs an abler pen than mine to do justice to the work that Emil Berliner did on improving the telephone...he standardized it, (the telephone mouthpiece) so that it became the instrument it is today. The courts of the United States have given him most ample credit for this achievement."

Of all things in the world science should know no race, as ex-president Hoover states, but European anti-Semites intent upon discrediting the Jew racially have only emphasized how far he has advanced scien-

tific matters. In fact, one of the main objections against the continental Jews seems to be that they had 'been in the forefront of the professions.' Half of the professional men of Hungary are Jews and the same percentage obtains in the Union of Soviet Republics. It was even higher in pre-Nazi Germany where universities are now closed to them, where they have been again forced to wear the yellow badges of servitude.

Ugo V. d'Annunzio, son of the Italian novelist, has stated that there were some three hundred Italian-Jewish professors in his country, that the Crown Prince's tutor was a Jew. A recent emigré to Italy, Dr. Erwin Stuckgold was King Victor Emmanuel III's private physician, and Rome's most popular dentist is Joseph Weiss, its most famous gynecologist, Dr. Alexander Dubinski. The old curse of the "little people" seems to have reached even these singing and dancing Italians who are also telling the Jews to "move on!"

According to the editor of *American Men of Science*, seven of our hundred leading scientists come from Jewish families. Only one other race shows a slight superiority. This is due to the fact that half of those Germans who came to this country to fill scientific positions are of Jewish descent, causing the editor of this standard reference work, Professor James McKeen Cattell, known as the Dean of American Science, to express his opinion that, "The Jewish race thus appears superior in intellectual ability."

NOBEL LAUREATES



Comprising but three-fourths of one per cent of the western people, Jews have been honored with one-tenth of all the Nobel prizes which are awarded annually to the greatest benefactors of mankind. Poland, where "Ghetto benches" were reintroduced into the Universities even before it became part of Nazi Germany, has received but four Nobel grants as against six awarded to Austrian Jews; France and Germany only a few more.

German-Jews carried off one third of the Nobel prizes although they constituted only one per cent of the population even in pre-Nazi days. The extraordinary achievements of these distinguished Jewish scientists run all the way from measuring the velocity of light to freeing humanity from those dreaded communicable diseases which have scourged mankind since the dawn of history.

Alfred Bernhard Nobel's object in establishing these huge money awards was to encourage the highest kind of disinterested service for mankind. He was a clever business man as well as a frustrated novelist. In a letter to his sister-in-law, Edla, this perfecter of dynamite wrote, "I am disgusted with myself, without rudder or compass, like a purposeless, fate-stricken wreck." "I declare it to be my express desire in the awarding of prizes," he wrote in his historic testa-

ment, "no consideration whatever be paid to the nationality of candidates."

Jewish Nobel prize winners follow in alphabetical order. If those scientists of remote Jewish ancestry were to be added to these twenty-one laureates, the ratio would be still higher than their already high percentage. Tobias Michael Carel Asser, for peace work, 1911; Adolf von Berlin Bayer, for work in chemistry, 1905; Robert Barany, for work in medicine, 1914; Niels Bohr, for work in physics, 1922; Henri Bergson, for literary work, 1927; Paul Ehrlich, for work in medicine, 1908; Albert Einstein, for work in physics, 1921; James Franck, for work in physics, 1925; Alfred H. Fried, for peace work, 1911; Paul Heyse, for literary work, 1910; Fritz Haber, for work in chemistry, 1918; Gustave Hertz, for work in physics, 1925; Gabriel Lippmann, for work in physics, 1908; Karl Landsteiner, for work in medicine, 1930; Otto Loewi, for work in medicine, 1936; Ilya I. Metchnikoff, for work in medicine, 1908; Otto Meyerhoff, for work in medicine, 1922; Albert A. Michelson, for work in physics, 1907; Otto Wallach, for work in chemistry, 1910; Otto H. Warburg, for work in medicine, 1931; Richard Willstätter, for chemistry, 1915.

Many Jewish physicians, chemists, bio-chemists, surgeons, technologists and inventors have also won world-wide acclaim in recent years without benefit of Nobel prizes; (Sigmund Freud, the noted Viennese psychiatrist, popularly known as "The Christopher Columbus of the subconscious world," Waldemare M. W. Haffkine, whose vaccine, "Haffkine," immu-

nized the benighted natives of India against cholera. In our own country, Jacques Loeb, the famous Rockefeller Institute biologist, succeeded in fertilizing the egg of the sea urchin in the Marine Laboratory at Woods' Hole in Massachusetts. With the use of chemicals and producing young larvae, he struck a heavy blow at the popular theory that life could not be created without the mysterious "vital spirit." Upton Sinclair says, "The only proof that has been offered of a virgin birth is that of the sea urchin's in the laboratory of Jacques Loeb." Dr. Gregory Goodwin Pincus, Clark University, two years ago was credited with the first fertilization of mammalian *ova in vitro*; in less technical words, conception in a glass tube. His most recent biological marvel was the creation of a fatherless rabbit born from an ovum that had never met the fertilizing male element, this by the process called "parthenogenesis."

Franz Boas, the eighty-year-old Columbia University anthropologist, recently was made spokesman for the one thousand two hundred and eighty-four leading American scientists whose Manifesto of Science declares among other things, "American scientists . . . hold fast to their conviction that . . . science is wholly independent of national boundaries and races and creeds and can flourish only where there is peace and intellectual freedom."

The fame of the two Flexner brothers has spread throughout the world. Simon formerly was chief of the laboratories of the Rockefeller Institute of Medi-

Hertz's widow now ekes out a meagre living in England with funds supplied her by the last Holy Pope after she was forced to flee Italy. Her famous husband was on the point of discovering X-rays while doing research work on discharges of electricity in rarefied gases when he died, a very young man. Helmholtz, the great German physicist who edited his scientific "works," states in his very flattering preface, "In classical times men would have regarded the untimely death of Hertz as due to the jealousy of the Gods."

Paul Ehrlich comes next. His great medical discovery, "606," has saved thousands and restored to useful lives countless others from the ravages of syphilis. This noble-minded scientist was so absorbed by his laboratory researches that he quite forgot his family's existence. It is said that he would have to mail himself a postcard to remind himself of any promise made to spend an evening with them.

Ehrlich, who experimented with one serum after another, knew failure if ever any man knew it. He had, in very fact, to make 606 serums before he discovered Neosalvarsan; hence its name or rather its number. This noted chemist has to his credit the discovery of diazoreaction, a urine test of inestimable value in typhus diagnosis. Convinced that certain chemicals were capable of destroying microbes within man's body, Ehrlich may also be credited with anticipating the discovery of sulfanilamide.

Ehrlich succeeded in staining the tubercule bacillus, thus creating a milestone in the cure of the dread white plague. He himself became affected with the

disease during his studies. Professor Max Levy-Dorn, the famous Berlin radiologist, died of Roentgen cancer. Paul Ehrlich also formulated the "side chain theory" of immunization and along with Dr. Behring may be credited with discovering the famous diphtheria antitoxin.

Speaking of his "magic bullet" serum to cure syphilis, Ehrlich declared, "I have a dye to cure a mouse, I shall find one to save a million men." Throughout all his laboratory tests, Ehrlich was assisted by Bentheim and a dozen other Jewish chemists. Reuben L. Kahn perfected his own syphilis test now in use by many governments. August Wassermann won international acclaim some thirty years ago with his famous "Wassermann reaction" test, so-called because it enables both past infections and the activity of the disease in progress to be scientifically ascertained. Like Fritz Haber, this famous bacteriologist had been a director of the Kaiser-Wilhelm Institute in Berlin.

Professor Albert A. Michelson follows Berliner, inventor of the microphone, on this list. The first American scientist to get the Nobel prize for measuring the velocity of light, he is the inventor of the interferometer, fundamental in wave analysis, in the manufacture of precision gages and other astronomical instruments that measure the Milky Way with the precision of a tape measure. This high priest of light may have been inspired in his heavenly studies by one of the first utterances in Genesis, the most sublime words in any language, "Let there be light."

Science knows no greater energy than that of those cosmic rays which bombard us day and night from outermost space, penetrating all things, even our bodies. Maimonides many hundreds of years before Michelson seemed to have sensed the importance of light from the way he was constantly referring to it in his scientific writings.

Otto Lilienthal, who follows Berliner on this list, was the first aviator to fly a heavier-than-air machine and a pioneer with gliders. His historic achievements in the air inspired the Wright brothers later to make their daring experiments, as has been acknowledged by them. With his brother, Gustave, Otto made two thousand trips in the air, this more than forty years ago and he was one of aviation's first martyrs.

It was altogether fitting when Colonel Lindbergh and Dr. Hugo Eckener were brought together a few years ago, that the Lilienthal Society in Munich was chosen as the place for them to clasp hands under the portrait of this "Father of Flying." Perhaps the same public acclaim will some day be given to Emile Berliner who with his son, Henry, made the foremost American advance in vertical flight, according to Mr. Edward Garber, Curator of Aeronautics, Smithsonian Institute, where may be seen their helicopter. Berliner, who precedes Michelson on this roll of honor, began his experiments in 1907. His model, equipped with lifting propellers extended laterally by gears and shafts from a centrally-located engine, is the engineering principle, according to this authority, upon which

model helicopters are now being perfected by European inventors.

It is not generally known outside of Friedrichshafen, that Count Zeppelin perfected his famous airship from patents which he purchased from the widow of David Schwartz, the dirigible's original inventor, who also pioneered in the use of aluminum for airship construction. The model for this historic airship used to be on exhibition in the German Museum at Munich. Schwartz' whole life was one of poverty and frustration. He dropped dead from a heart attack when the Prussian Ministry of War made him an offer to buy his invention. The struggle for mere existence had been too terrible. The first Zeppelin piloted from Europe to the United States in 1924 was in charge of Karl Arnstein, now chief engineer of the Goodyear Zeppelin Company in this country. The great-grandfather of Italo Balbo, Italy's greatest birdman recently killed in battle, is alleged to have been a Jew.

German Jews are not permitted "any place at a steering wheel of an automobile because the automobile was invented by German genius," reads a recent Nazi decree. It is a matter of record that five years before the appearance of either the Daimler or the Benz automobile in Germany, a Jewish inventor hailing from Mecklenberg was ordered off the streets of Vienna because his lumbering benzine-driven engine, the first automobile in the world to use liquid fuel, made such a racket. Siegfried Marcus' *Kraftwagon* may still be the proud possession of the Technical

Museum of Vienna where it was correctly labeled "the first automobile." Marcus also invented the thermos flask.

Mond who comes after Lilienthal on this list, like Herschel before him, was born in Germany, although most of his life was spent in England. This poor immigrant lived to become Lord Melchett, to have an industrial gas named in his honor. It is no exaggeration of fact to say that Alfred Mond developed the chemical industry in Great Britain by his introduction of the ammonia-soda process of manufacturing sodium carbonate and by the production of a producer gas from useless slag and its distribution for power purposes.

Steinmetz, last in the *World Almanac* classification, has been called a "Jove in science" because of his two hundred electrical inventions. Neither Edison, nor Marconi, nor any of the other noted scientists who beat a path to his door, nor any of the newspapermen intent upon getting a story, was ever able to persuade this shy little cripple, who wrote the classical study on alternating current, to say anything either about his achievements or his racial origin. If perchance there exists any little bit of doubt about the ancestry of this founder of the General Electric laboratories who made a path for the researches of Whitney, Langmuir and Coolidge, there certainly is none at all about the race of Yoffe the Russian-Jewish scientist whom General Electric, so it is rumored, has been endeavoring to get to succeed "the wizard of Schenectady."

EINSTEIN AND MORE QUESTIONS



The greatest living scientist, perhaps, to receive the Nobel prize is another American Jew, for Albert Einstein is now a full-fledged naturalized citizen. This immortal who insists that his fame is an "accident" has lived to see his name linked with Pythagoras, Galileo, Kepler and Copernicus. Recently he was cited for brightening the appearances of stars through "space lenses" and two years ago in cooperation with Dr. N. Rosen, he submitted mathematical proof of a whole new realm of radiation. On his recent sixtieth birthday, Einstein expressed the hope that he was on the verge of discovering a new universal natural law.

The Rector of St. James Methodist Episcopal Church in New York City said in his Christmas sermon, 1930, "Einstein in this twentieth century has given us a new heaven just as Jesus, in the first century, gave us a new world. It is taking men a long time to transform this globe into the new earth for which Jesus gave man the blueprint 1,900 years ago. We need not be surprised that almost no one understands the new heaven visioned by Einstein."

Back of this noted physicist and supporting his revolutionary theory regarding the Relativity of Time and Space which is supposed to have supplanted Newton's theory of gravitation, stand Michelson, Minkowski with his almost equally historic Time-

Space theory, and Levi-Civita, the famous mathematician, all Jews. Television, when it comes, will stem, or rather it will vibrate, from Einstein's theories regarding the emission of electrons from metals by light.

Einstein's generous estimate of another contemporary scientist, Niels H. D. Bohr, another Nobel laureate, another Jew, indicated his true stature as a scientist. "When a later generation comes to write the history of the progress made in physics in our own times it will have to connect one of the most important advances ever made to our knowledge of the nature of the atom with the name of Niels Bohr." Coming from Einstein this cannot but be a sincere tribute.

No one could call this self-effacing man a professional Jew, for in none of his biographical notices does Einstein make even the slightest reference to his race, believing, to quote his own words, "The scientist is possessed by the sense of universal causation—his religious feeling takes the form of a rapturous amazement at the harmony of natural law." James Franck, now connected with the University of Chicago, was also awarded the Nobel prize for his researches in atomic theories as Gustave Hertz had been for his researches in theories of electrons, and Gabriel Lippmann for his work in physics.

Einstein, who became a Nobel laureate because of his achievements in astrophysics, and has been called, in different places, at different times, "a Swiss savant," "a German Jew," "a French scientist," is credited with an amusing anecdote which, whether true or not,

does throw a little light on some of the many difficulties attendant upon correctly identifying any Jewish scientist. Being pressed by an importunate newspaperman to declare his race, Einstein is said to have replied, smilingly, "If my theory of Relativity is proved to be correct, I will be claimed as a German scientist by Germany. If wrong, the Germans will say, 'What can you expect of a Jew.' The French, in turn, will call me a German if wrong, and a Jew, if right."

How very much scientists prefer to be known as such is evidenced, too, by the fact that only two out of the twenty-one Jewish Nobel prize winners have in any way ever indicated their racial ancestry; Metchnikoff, the famous Pasteur Institute bacteriologist, and Paul Heyse, whose inspired writings in behalf of Peace have somewhat evened the scales with the sinister poison gas discoveries of Haber.

The exact racial origins of the following recipients of Nobel prizes are still absolutely to be decided; Jacinto Benavente, the noted Spanish playwright; Walter Nernst, responsible for a great deal of the fundamental work on reversible galvanic cells; Grazia Deledda, the prolific Italian novelist; Anatole France, the gentle satirist. Repeated allusions have been made to the alleged Jewish origins of the father of Madame Curie, winner of the prize both in physics and in chemistry.

It is still an open question whether the Jews constitute a race or a nation. "Jews, like Germans, are of two different races," according to Professor Thomas G. Taylor, who recently commented before

the British Association for the Advancement of Science that the term "Jew" should be used only in connection with religion, and the term should be "Jewish cult" rather than "Jewish race."

Dr. Niels H. D. Bohr previously had warned the International Anthropological and Ethnographical Sciences Convention against the fallacy of all racist theories, stating that, "It is most difficult even to draw safe conclusions in the physical sciences." It is a matter of deep regret with the writer that he has been compelled to omit any number of distinguished names he has reason to believe belonged to Jewish scientists because the corroborative proof that was sought could not, after long painstaking investigation, be found. This circumstance, it is hoped, may explain away somewhat any sins of omission; also all those of commission which have unwittingly crept into this chronicle.

Bohr's use of spectroscopy and his historic discoveries about the atom have led to one scientific triumph after another. No wonder the Institute of Theoretical Physics at Copenhagen, which he founded, up to a few years ago was the present-day Mecca of all scientists. Professor Bohr was the first scientist to suspect the existence of a natural substance which Professor John R. Dunning, Columbia University physicist, says yields a force five million times more potent than coal.

Metchnikoff's famous book, *Prolongation of Life*, was hailed on its appearance by serious British journals as the most important scientific treatise since

Darwin's *Origin of Species*. Metchnikoff it was who acquainted the western world with the health-giving properties of the Bulgarian bacillus.

This Russian Jew, who never had a physician's certificate, was sneered at by many as a "bug hunter." Yet his topsy-turvy laboratory in the Pasteur Institute was always jammed to the doors by serious-faced scientists who traveled from all parts of the world to listen to the words of this famous biologist who declared over and over again, "Disease is only an episode."

THE TELEPHONE AND WIRELESS



Long before Berliner made everyday telephony possible, long before Bell started his eventful experiments, Philip Reis, son of a poor Jewish baker, constructed a telephone instrument. All standard reference books record the fact that Bell followed Reis' methods of using electricity for the transmission of sound; also, that Bell even borrowed the very word "telephony" from the vocabulary of this German Jew. The *Encyclopædia Britannica* says, "In Reis' lectures an apparatus was described which has given rise to much discussion as to priority in the invention of the telephone. . . . It was described in over fifty countries and known to physicists previous to Bell's introduction of the electric telephone as a competitor to electric telegraph."

This explains why the proud citizens of Friederichsdorf, Germany, erected an imposing monument to the memory of this great scientist whose epitaph reads, *Der Erfinder des Telephones*—"Inventor of the Telephone."

Hear Professor Philip Lenard, himself a Nobel laureate. "The telephone was invented by a Frankfurt teacher of physics, Philip Reis in 1860." That Professor Lenard is not pro-Semitic is evidenced by the fact that in his *Great Men of Science*, from which the above quotation is made, he could not find space

even to mention Einstein's name. Or read the words of the inventor himself whose original wooden models of the telephone are shown by the Smithsonian Institute in Washington. These were made by Reis in 1860, seventeen years before Alexander Graham Bell exhibited his first crude apparatus to transmit sound electrically. Here they are, as copied from the statement in the show-case of this museum of inventions. The date is 1863. "Two years ago I succeeded in effecting the possibility of the reproduction of tones by the galvanic current and in setting up a convenient apparatus therefor.... If sufficiently strong tones are produced before the sound aperture, the membrane and the hammer-shaped hammer upon it, are set in motion by the vibrations; the circuit will be once opened and closed for each full vibration, and thereby will be reproduced in the iron wire of the spiral the same number of vibrations which are there perceived as a tone or combination of tones." The American, Elias Elken Ries, has invented new telephone systems; also over one hundred and fifty electrical devices, including motor controllers, regulation of sockets for electric lamps, methods for electrically welding track rails.

Accepted by almost everyone as the real inventor of radio, Marconi really comes very late in this science, comes long after Poulson, Preece, Tesla and de Forest, and even Edison whose various wireless patents he is rumored to have bought up for \$100,000 in cash. The son of a rich man, Marconi at college specialized in Hertz's great discovery that electrical waves could

be produced in ether, having all the fundamental properties of light. In fact, he wrote his university thesis on the achievements of this Jewish scientist.

Marconi subsequently did make a great business out of wireless by utilizing "Hertzian waves" for air telegraphy by means of the Morse Key. Marconigrams did become a notable industrial accomplishment. What Shaw said about Einstein was said about Hertz by Sir William Crookes, the noted English scientist years ago, viz: that he "unfolded to us a new and astonishing world. . . . The experimental work of Hertz thirteen years ago on the identity of light and electricity, and the knowledge of how to produce, and how to detect those ether waves, the existence of which had been so far unknown, made possible wireless telegraphy." This was written in 1900.

Archimedes, the most celebrated inventor of antiquity, never hoped even in his wildest scientific dream, to find anything quite as awe-inspiring as those little electric sparks that Hertz, God-like, had created in the quiet of his laboratory. Little flashes of lightning! If Hertz came nearer than any other scientist to defining "electricity," Ezekiel, a Babylonian deportee, was the first man in history to use the word, not William Gilbert as it is generally assumed by textbook writers on this subject. In Hebrew it is "hasmal" and can be found in chapter one of the great prophet's writings. This, twelve hundred years before Gilbert, several hundreds of years before Aristotle! Herman Aron was the first scientist to establish a measure for electricity. He also invented an incan-

descent gas light. Nathan Wise perfected a two-filament electric light bulb. The capillary electrometer was invented by Ernest Fleischel von Markow, the electric thermometer by Peter Theopil Riess. Julius Sax invented automatic bullion balances.

Manoel F. Behar, whose father, Nissim Behar, established the first technical school in Jerusalem, seems to be trying to bring Ezekiel down to date. Commenting in his Manual on instrumentation which makes an attempt to formulate into a science the art pertaining to industrial instruments, he says, "the one best means of controlling conditions is an appreciation of the fact that before a condition can be controlled it must be measured."

Dr. Alfred N. Goldsmith has been chief broadcast engineer and chairman of the board of engineers of the National Broadcasting Company, consulting radio expert, U. S. Department of Justice, chief radio engineer, Atlantic Communications Company, director of research, Marconi Wireless Telegraph Company of America. The first radio man to make a home-made television set in this country was Al. D. Simon.

When the "iconoscope" or image-maker of television is perfected, some small degree of credit will have to be given to the fact that considerable assistance was supplied to its inventor, Dr. Vladimir Z. Zworykin, from the Morris Liebmann Memorial Fund. Earl J. Simon, then president of the Radio Engineers' Institute and himself a prominent inventor, presented this money to this noted scientist.

European courts of justice have time and time

again acknowledged Robert von Lieben as the inventor of the three-element radio tube which has done as much for radio reception as Berliner's microphone did for radio transmission. Fritz Loewenstein's grid-bias application was quite as historic an invention for it brought the vacuum tube up to its present high state of efficiency.

NAMING NAMES



At the very great risk of bogging down this account for a few pages, the names of Jewish scientists and inventors with Jewish origins will be introduced in brisk succession. Despite the fact that directories are interest-defying there is no other alternative here. However, these names will be hastened through, for to go into either the technical careers or the personal lives of these famous men would require volumes. General statements to the effect that one Jewish immunologist formulated a cholera vaccine, another a bubonic plague serum, another a pneumonia specific, or that one Jewish inventor devised street cars, another a scientific method to detect icebergs, are far from establishing a case for the Jew in science. Names must be stated.

William Dubilier, possessor of a hundred radio patents, was internationally known even before the World War for his electrical condensers, the value of which was publicly commented upon by the United States Navy. Lester Israels has over fifty patents on radio receivers. In Germany, Max Wien made many improvements on radio methods and back in Czaristic times, Simon Eisenstein pioneered in radio reception.

Frederick Adolph Paneth is world-famous for his work in radio activity. Radio static is being eliminated by Dr. Louis Cohen, and an amazing device to

transmit photographs by wireless recently was perfected by Dr. Arthur Korn, who also is credited with the first practical method of achieving television. Ernest Ruhmer, too, has done noteworthy work on picture-sending by wireless and radio telephony.

The quadruple telegram was forecast by Hayyim Selig Slonimski, and a Russian Jew, Lazare Jean Weiller, made long distance telephony possible with his copper alloys. John Lewis Ricardo is credited with establishing the first electric telegraph for national purposes in England in 1846.

Emil Rothevan signalled through three miles of water by means of a conductive system of wireless telegraphy, Louis Sternberger has sometimes been called "the Jewish Edison," because he developed high-powered tension insulators. The telegraphic news system was inaugurated by Reuter; Benda Wolf founded the famous European news bureau and Edward Rascovar established the New York News Bureau.

Joseph Michaelson devised the International Postal Union in 1859. Joseph Levy founded the first penny newspaper, the *Daily Telegraph* in London. Pulitzer introduced popular journalism in the United States, and Adolph S. Ochs made *The New York Times* the great newspaper that it is. William L. Laurence "covers" all the scientific conventions for it. David Dietz, the Science Editor of the Scripps-Howard newspapers, won the Pulitzer prize last year for distinguished reportorial work.

The first electric automobile was driven in Darmstadt, Germany, in 1854 by Davidson. Jews invented the "pleater," the "shuttle," and the "shirrer" improvements on the Singer sewing machine.

A modern Jew, Nahum Solomon, invented the "spider wheel" in England some years back, helping to make modern bicycling possible. Over fifty years ago, Professor Myers invented a velocipede. A noted globe-trotter who recently returned from the waste places of the world said that he would define a "primitive" as one still unacquainted with the principle of the wheel, the great agent of civilization. Citroën was the Ford of France. Herbert Jacob Moritz constructed the first electrically-driven motor boat.

Ezekiel, who over two thousand years ago spoke of the wheel, is still held up by school teachers as a model of what a pure scientist should be. Picking out Ezekiel from all the ancients of history, Richard T. Cox, Professor of Physics, New York University, says about him in his *Time, Space and Atoms*, "It is this man with the measuring rod that I take as the type of the man of science. He comes late in the book; he did not appear among the cherubim, many-eyed and multiform, that ran with the wheels beside the clouds of fire; neither did he have any part in the towering traffic of Tyre or the rushing hosts of the horsemen of Gog. He appeared as a metallic being and went here and there with his rod measuring whatever he found to measure until he had amassed the data that fill three chapters of the Book of Ezekiel. After he had finished his work, there was a vision of

great splendor, and the whole earth shone with a new glory . . . he and his measuring rod are curiously infused with the frame of things measured."

It is known that the discoverer of America, Columbus, kept Zacut's or Zacuto's "Great Astronomical Tables" under his pillow. These registers were published by a noted Portugese Jew, Abraham D'Orteas. In the Columbus library in Seville, Spain, two of Zacut's astronomical tables are on exhibition. Others are on exhibition at the Hispanic Society in New York City. A copy of his *Almanac*, published in 1475, enabled Columbus to predict a moon eclipse on Jamaica where he and his crew were stranded, thus saving them, according to a legend, from being destroyed by the native islanders.

The worn volume of these tables, his constant companion on the historic voyage across the Atlantic, is frequently on exhibition in the Museum of the Jewish Theological Seminary of America, New York City. It seems evident that Columbus could never have braved the angry Atlantic without the aid of Levi Ben Gershon's (or Gersonide's) Sea Quadrant or "Jacob's Ladder," the name by which this famous nautical instrument for star-observation is better known. Another quadrant Columbus used was the invention of Jacob Ben Makir referred to by navigators as "Quadrans Judaicus." The first white man to land in the new world was the ship's surgeon, a Jew by the name of Luis de Torres, who is said to have introduced tobacco in Europe.

Sven Hedin, President of the Royal Swedish Acad-

emy of Science, like Graham Sanberg after him, pierced forbidden Tibet. Back in the Middle Ages, Joseph Acosta gained fame as an explorer and scientist and Benjamin Tudelo was perhaps the greatest traveler of those times. His *Itinerary* is so packed with geographical and commercial information about far-flung places that it is easy to understand why he was called "the Jewish Marco Polo."

The real name of Edwin Pasha, who explored Africa for the German Government, was Edward Schnitzer. The British Mission into Bokhara was led by Joseph Wolff. Edouard Foa discovered the source of the Zambesi river, Henry Aaron Stern explored the recesses of Abyssinia and Ferdinand Mendez Pinto was the first to acquaint the Occident with the riches of Japan. Barnett Isaac Barnato, with Cecil Rhodes, developed South Africa for England. Half explorer, half industrialist, "Barney," as he was popularly known, founded the noted Johannesburg water works. Sir Arthur Schuster headed the Eclipse Expedition to Siam in 1875, Emil Bessels established the fact that the Gulf Stream went eastward from Spitzbergen, and Commander Edward Ellsberg who salvaged the sunken S 51 and S 4 was awarded the I. S. C., the first to be given in peace times.

Joseph Popper, an Austrian Jew, is looked upon as the first engineer to conceive of the transmission of electrical power. His theory was published in 1882 by the Imperial Academy of Science. Polarized electric flashes were developed by Lemoine and Henry Azariah Abraham. Herschel in England discovered

heat rays, Boltzman in Germany discovered radiation. Gerard Swope, chairman of the board of directors, International General Electric Company for many years, created the unemployment insurance for its one hundred thousand employees. He is now chairman of the New York City Housing Authority.

Abraham Schreiner, a Galician Jew, is credited with the discovery of petroleum, thus paving the way for modern systems of transportation. Hydrochloric acid was discovered by a Jewess. Other Jewish chemists discovered glauber salts, benzine, acetone peroxide, hydrogen peroxide. Their names are all recorded in *The Encyclopedia of Jewish Knowledge*. Julius Stieglitz and Moses Gomberg are among our top chemists. Isaac H. Levin, a Pittsburgh chemist, perfected electrolytic cells for generating oxygen and hydrogen; Isaac Bencowitz, a method of casting sulphur pipe.

Adolph von Bayer was given a Nobel award in 1905 for his researches in indigo, Nikodem Caro headed the world-famous chemical works in Munich. Victor Meyers invented ways for mass production of cheap industrial chemicals. Russia has paid honor to Michael Altschul for his work on acetylene and Richard Willstätter is largely responsible for the supremacy of the German dye industry of which Ernest Bornstein is the accepted encyclopedist. Albert Blum revolutionized the dyeing industry in this country. For many years he was a director of the du Pont Rayon Company. Bernard Baruch organized the war industries for the United States Government during

the World War. The pioneer of electro-technical industry in Austria was Johann Kremenetsky. Jews founded the German amber, beet sugar and casein industries.

Lord Melchett headed the Chemical Trust in England up to his death a few years ago. Gustave Lange, discoverer of many chemicals, is the authority on the manufacture of alkalis. Adolph Frank established the first potash plant in Germany, Carl Theodore Liebermann was the first chemist to produce a vegetable dye artificially. Aniline red, indulin, negrocine and methylene blue, the favorite chemical of Ehrlich in his many researches on mice and men, were discovered by Heinrich Caro, and the father of the celanese artificial silk industry is H. Dreyfuss.

Chaim Weizmann, former head of Hebrew University and now president of the Daniel Sieff Institute in Jerusalem, has shown that the Dead Sea is anything but dead, chemically. His discovery of a method of preparing acetone was said to have helped England win the last war. Fritz Haber, who discovered poison gas, left his library and all his notes to this famous agricultural college which is now doing notable research work in by-products. Safety matches are the invention of Samson Valobra, an Italian Jew.

Moritz Herman Jacobi laid the foundation for electrotyping and made electro-plating commercially profitable in Russia. Noah London was revolutionizing the coal industry of that country up to the time he was "liquidated" by the Bolsheviks. An American-Jewish chemist perfected the synthetic sapphire in

Paris over twenty years ago. The head of the Metallographic Institute in Stockholm is Carl Frederick Benedicks. Otto Wallach won the Nobel prize in 1910 for his research in essential oils and terpenes.

Gabriel Lippmann, another Nobel laureate, discovered the process of color photography. Max Wolf introduced photographic methods into astronomy. Louis Edward Levy invented a new method for micro-photography in 1869. His "Levy-type" photo-engraving process came in 1875, his "photo-mezzotint" in 1889.

The most prominent names in the radio industry in this country are David Sarnoff, President of R. C. A. and William C. Paley, head of the Columbia Broadcasting Company. The former was recently awarded the 1938 gold medal for achievement by the Poor Richard Club for "materially advancing American civilization and raising the standard of living of Americans." The Bamberger Broadcasting Station excels in its musical programs. Until his death, four years ago, Walter Schaeffer was Chief Engineer of the Reich Radio in Germany. The world's largest radio station was located outside of Warsaw and was directed by M. Eisenstein. In Italy, Allesandro Orton pioneered in radio.

Marcus M. Marks, formerly Borough President of Manhattan, New York City, gave us daylight saving time. Louis Horowitz, the master builder of skyscrapers, etched the famous skyline of New York City, and Capt. Zalinski invented the dynamite gun at Sandy Hook which protects the entrance to the new world.

Military Inventions, written by Giovanni Battista Isacchi of Reggio, Italy, was the authority on this subject in the sixteenth century.

The two Mordecais are equally well known. The father probably is the most prominent engineer connected with the U. S. Engineers, and the author of the army Manuals. The son, a mathematical professor at West Point, a Brigadier-General, is Chief of Ordnance, in charge of Arsenal and Armories. The head of the Health Council of the French Army was Professor Jacques Louis Begin and Professor Leon Blum was General of Inspection of the French Medical Corps. Bernhard Ornstein was Surgeon-General of the Grecian Army.

"Since the Germans drove out the Jews and lowered their technical standards, our science is definitely ahead of theirs," Prime Minister Churchill told the House of Commons in his August 20th speech, this year.

A Jew was the Chief Naval Engineer of Italy. Another, Benno Strauss, was Director of the Research Laboratory of Krupp and a founder of stainless steel. Möis H. Avram made gun sights for the U. S. Government during the World War; his invention, the Productograph, records on a drum meter the exact amount of work turned out by each machine, no matter how many thousands of miles away it might be. The 1940 John Fritz Gold Medal, one of the highest engineering honors in the United States, was recently awarded posthumously to Dr. Clarence Floyd

Hirshfield, who up to his death was chief of research of the Detroit Edison Company.

David Bernard Steinman who designed the Triborough Bridge connecting three of New York City's largest boroughs is probably the greatest living bridge builder. He erected the largest suspension bridges in North and South America, Canada and Germany. Leon Solomon Moisseiff, a recognized authority on long-span bridge construction, has to his credit some of the world's greatest bridges, the Manhattan and Queensboro bridges crossing the East River, New York City, as well as the Philadelphia-Camden bridge. Abraham Gottlieb is another great railway bridge constructor; J. B. Strauss is an authority on designs for moving and fixed bridges. Maurice Blumenthal, who died recently, invented several pieces of pile-driver apparatus.

The first thing a bridge builder does before he starts work, is to get out "Smoley's Tables," the next, usually, is to use William Frankel's device to test the strength of a proposed bridge. Both these scientists are Jews. M. Boguslavski had a great reputation in Russia. Another Jewish engineer helped to build the Moscow subway, considered the most beautiful in the world; another, Samuel Rosoff, directed the building of the Sixth Avenue subway in New York City, another, the Queens Tunnel on Long Island, both extraordinary engineering jobs.

Joseph d'Aguiar Samuda and his brother probably were the most noted mid-Victorian engineers; they pioneered in iron for steamship construction. Albert

Ballin, creator of the German Mercantile Marine, also developed the Hamburg-American Line. Jacob Emile Pereire founded the first French transatlantic steamboat service, also the first French railroad. The signalling system that made railway traveling safe was invented by David Lionel Salomons.

Albert Kahn inaugurated the modern daylight factory in this country. Kandinsky was one of the Masters of the Bauhaus in Munich which brought new light on the shapes of "things to come" from lighting fixtures to homes. Among the factories designed by Albert Kahn are the Ford, General Motors, Packard, Hudson, Republic Steel and the Burroughs Adding Machine plant. His brother Moritz, who just died, invented many features in advanced construction. Alfred Massel did for German industrial architecture what Kahn did for America. An entirely new period in modernistic architecture was introduced by Erich Mendelsohn in Germany. In the United States, the Park Commissioner of New York, Robert Moses, has made a national reputation with his beautiful parks, playgrounds and motor parkways which have efficiently solved many of the worst traffic problems besetting the various approaches to the metropolis.

The two most beautiful theatres in New York City were constructed by Henry Beaumont Herts who also designed many of its imposing synagogues. Eiffel, who erected the famous tower that dominates Paris, is identified as a Jew by Professor Louis Gershenfeld. Henry Dreyfuss, designer of the New York World's Fair Perisphere and Trylon, streamlined the

Mercury train for the New York Central Railroad. Leon Victor Solon was recently awarded a medal by the American Ceramic Society for architectural tile designing. Bezalel ben Hur, Chief Architect of the Tabernacle, was a gifted engraver of stones and metals.

Thirty important technical posts are held by Jews in the machine arts of the moving and talking pictures. Sound films were made possible through the radio amplifier, an invention of Robert von Leben. Thalberg, Zukor, Mayer, Laemmle, Fox, Goldwyn are names known the world over. Eisenstein, the Russian Jewish Director, brought the magic lantern to a new high of pictorial perfection. The Photomaton is a Jewish invention. Sir John F. W. Herschel invented sensitized paper for photography. In the early part of the thirteenth century, Levi Ben Gerson invented the camera obscura and his "Jacob's Staff" anticipated by many hundreds of years the measuring of light, now a prime objective of modern physicists. In the Middle Ages it helped mariners find their position at sea.

Sir Richard Gregory declares in *Discovery* that Karl Gustave Jacobi is "the greatest mathematical teacher of his generation." This was the century before Einstein, Minkowski, Levi-Civita. Cantor's work on numbers is authoritative, so is "the periodic law" of Mendeleeff. "Gompertz' law" is the basis of all actuarial mortality tables. Eduard Israel was the mathematician of the Greeley Expedition to the North Pole. Professor James Joseph Sylvester, who taught in the

Universities of Oxford, London and Virginia, invented many mathematical instruments.

Leo Konigsburger and Max Born are in the forefront of modern physicists. Chess, nearest to the science of mathematics of all other games, is a pastime in which Jews excel; Samuel Reshevsky and Reuben Fine were America's recent representatives at the International Chess Tournament at Amsterdam, Holland.

Hugo Münsterberg was the first to make a practical tool of psychology and Dr. Alfred Adler's "inferiority complex" has proved of great practical benefit to physicians as have the psychoanalytic studies of Dr. Sigmund Freud, the great Viennese physician and his American disciple Dr. A. A. Brill. Emmanuel Mendel directed the Berlin Neurological Clinic and Dr. Otto Lipman directed the Institute for Practical Psychology in Berlin. The new science of racial psychology was founded by Moritz Lazarus co-operating with Heyman Steinthal, his brother-in-law. Professor Alfred Binet of the Sorbonne University, Paris, created the famous tests named after him. Lombroso, the Italian-Jewish physician, made criminology a science, as more recently Dr. Isadore Goldstein, the noted Mt. Sinai Hospital eye specialist, co-originated the system of criminal identification by mapping eye patterns. Sir William J. Herschel discovered finger-printing.

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DOCTORS AND CHEMISTS



In Exodus God is represented as the physician to his people and the Book of Ecclesiasticus lauds the skill of doctors. Throughout history Popes, Sultans, Emperors and Kings, have sought out the services of Jewish doctors, Jewish surgeons. Seven of the leading medical schools of Italy were in charge of Jewish doctors and this country has perhaps two hundred Jewish surgeons and physicians whose fame is widespread.

Howard Vincent O'Brien recently said "Pity for the poor German!" in *The Chicago Daily News* because if he has heart disease he's not permitted digitalis. If he has a toothache he's not allowed the comfort of cocaine. If he has a headache he must get along without pyramidon, because all these remedies were discovered by Jews. If a German has syphilis or diabetes, he cannot get along without giving thanks to Jewish scientists and mothers are not permitted to give chloral hydrate to quiet their babes' convulsions because this was also discovered by a Jewish doctor. "If he has a mental screw loose," Mr. O'Brien wittily concludes, "he must not attempt to tighten it by psychoanalysis, because the father of that teaching is a Jew, Sigmund Freud."

Ebn Zoha, also known as Avenzoar, in the twelfth century, was court physician to an Arabian King and

a Moroccan Prince. No medical work of that period attained the popularity of his *Aid to Health*. Isaac Israeli served the Fatimate Caliph at Kairwan. Vecchino was physician to King Emanuel of Italy. Francois I had a Jewish doctor and Bonet de Lattes was personal physician to Pope Leo X. Jacob Montano acted in this same capacity to Pope Paul III. Dr. Paulus Ricius was Maximilian's doctor; Amatus Lusitanus, whose real name was Juan Rodrigo, was physician to Pope Julius III, as Dr. Jean Astruc was consulting physician to French and Polish Kings in the eighteenth century. Michel de Nostradamus was court physician to King Charles IX.

Dr. Frederick Treves was surgeon to Queen Victoria and Edward VIII. Dr. Adolphe Abrahams, Dean of the Medical School of Westminster Hospital, has just been knighted for his services to medicine. The Duke of Windsor, as King, journeyed from London to Vienna, to get treatment from the late Professor Heinrich von Neumann, called the Surgeon of Sovereigns. In 1936 this great specialist was urged to treat Hitler for his throat affliction. Years before this, the late Dr. James Israel, considered the Dean of German Surgeons, was invited to the Russian court by the Czar. Ramsay Macdonald came to this country to consult Dr. Solomon Solis Cohen of Philadelphia. Charlemagne, German ruler a thousand years before the Fuehrer, had two Jewish physicians. Dr. Nathan ben Joel Falaguero was physician to the Vatican in the thirteenth century. The doctor in charge at the British Hospital for Mental Disorders and Brain Dis-

eases is Professor Bernhard Hollander; Lazar Minor was Lenin's physician.

There are no greater names in the conquest of disease than those of Ehrlich and Wassermann, great scientists who rid humanity of its oldest curse. The medical world was recently presented at Mount Sinai Hospital with an accelerated method of applying Ehrlich's chemical cure of syphilis that clears the disease up in five days. Dr. Waldemare M. W. Häffkine's famous vaccine stamped out those terrible plagues in India that were threatening its entire population. The almost equally famous Pasteur Institute scientist, Dr. Ilya Metchnikoff, proved that it was quite possible to prolong human life by destroying those active disease germs that attack it, and Dr. Joseph Goldberger faced the ravages of deathly fever in Mexico in order to find a scientific remedy to combat it.

Back in the eighth, ninth and tenth centuries, Jewish doctors were in the forefront of Moslem civilization which kept pushing westward across Africa, then up into Cordova, Spain. Many Jewish Nobel laureates won their prizes for excellence in medicine, Paul Ehrlich, Ilya Metchnikoff, Karl Landsteiner, Robert Barany, Otto Meyerhoff, Otto H. Warburg and Otto Loewi. In paying a tribute to the *Jews in Medicine*, the world-renowned German pathologist, Rudolf Virchow, said: "Among other things there were discovered Hebrew manuscripts from which we learn how eager and scholastical were Jewish doctors of the Middle Ages toward the maintaining and im-

proving of medicine. We may say that we can trace back much of the progress in medicine to the ability of the Jews which did so much for science." As far as the twelfth century, Averroes, the famous Arabian Jewish doctor, tried to free medicine from superstition.

Sir William Osler, the great English physician, more recently stated, "In the medical profession the Jews have a long and honorable record, and among no people is all that is best in our science and art more warmly appreciated."

American Jews have produced some of the most noted children's doctors, Nathan Oppenheim, Bernard Sachs, to mention only two. Dr. Abraham Jacobi is known the world over for his achievements in the field of pediatrics, so was Dr. Alfred Hess. So are Dr. Henry Heiman and Dr. Henry Koplik. Dr. Heinrich Finkelstein ranks with the leading pediatricians; Dr. Adolph Baginsky, co-founder of the Kaiser-und-Kaiserin-Friederich-Krankenhaus, is accepted as a creator of modern child therapeutics. The studies made in child psychology by Dr. Albert Moll are classics in medical history.

Dr. Isaac Levin is Director of the New York Cancer Institute and Professor Lustig of Italy presided at the last anti-cancer congress. Dr. Max Cutler will head the new Tumor Institute in Chicago. Dr. Ferdinand Blumenthal was Germany's greatest cancer specialist. The chief of the Cancer Division of New York City's Department of Hospitals is Dr. Ira Kaplan. Dr. Otto Warburg got his Nobel prize in 1931

for his work on cancer. Dr. Asher Winkelstein is chief of the Gastro-Intestinal Clinic of Mount Sinai Hospital. Ludwig Traube, founder of experimental pathology, whose Berlin clinic was world-famous, introduced digitalis therapy in the treatment of cardiac diseases.

Dr. Simon Flexner, the famous Rockefeller Institute pathologist, who revolutionized medical educational methods, developed a serum against meningitis, Marmorek, a serum to treat streptococci; Dr. Alexander Besredka, noted Pasteur Institute scientist, a typhus fever serum, Dr. Samuel Meltzer a device against tetanus. Dr. Albert Wolff-Eisner was the first to use tuberculin in diagnosis, Dr. Solomon Stricker the first to use salicylic acid in treatment of articular rheumatism. Dr. Abraham Hahn devised Intravin, an artificial fat remedy for diabetes; Dr. Albert Neisser, the pathological agent of gonorrhea, 1879. Dr. Arthur Steinberg recently discovered a method to produce blood clots with oxalic acid and save hemophiliacs from bleeding to death. Dr. Harry S. Gimbel, Johns Hopkins Hospital, has evolved a method for successfully treating pneumococci meningitis, the heretofore fatal inflammation of the brain. Dr. Rudolph Schindler, Associate Professor of Medicine, University of Chicago, recently invented a flexible gastroscope, the only scientific instrument that makes possible direct observation of the living stomach. Another Jewish doctor recently announced a cure for stomach ulcers, another a new method to detect cancer of the stomach. Dr. Albert Steiner, New York City Department

of Hospitals, has just announced a new treatment for arterio-sclerosis that is being hailed by physicians.

The professors of Hebrew University are doing valuable research work in the Huleh Swamps of Palestine on insects that transmit malaria, diphtheria, typhus fever, with snipers all about them. The "Schick test" to determine the presence of an immunity to diphtheria was created by Professor Bela Schick. Professor George Ferdinand Widal created the "Widal test" to diagnose typhoid fever. A combative factor against the ravages of typhus was discovered by Dr. Harry Plotz. Dr. Samuel Cohen has devised a new treatment for arthritis.

A Jewish scientist, Dr. Joseph Goldberger, found a cure for the poor man's disease of the south, pellagra. A Milwaukee physician of Russian-Jewish ancestry, the late Dr. Herman Nahin, invented the "Nahin knot" used on internal arteries; Dr. Moritz Brochadt, a method of operating on the peripheral nerves. Selmar Aschheim was a co-discoverer of the female sex hormone in the urine of pregnant women; the urine diagnosis for pregnancy is credited to Dr. Bernard Zondek. The famous theory of Determination of Sex was formulated by Dr. Leopold Schenk. The studies made by Dr. William Fliess relative to a definite "rhythm of life" are almost equally well-known.

Cocaine, a discovery of Solomon Stricker, was first used as a local anaesthetic by the great eye surgeon, Dr. Carl Koller in 1884. Dr. Ernest Fuchs is considered the greatest modern ophthalmologist. Novocaine

was introduced by Dr. Alfred Einhorn. The sleep-inducing effects of chloral hydrate were discovered by Dr. Oscar Matthias Eugene Liberich who also introduced lanolin to pharmacy. The thanks of many a mother have gone to this doctor. Pyramidon and antipyrin, as already indicated, are discoveries of Spiro and Eilege. Without the pioneering researches of Dr. Minkowsky, the medical world might still be without insulin, now so successfully employed in shock therapy as well as in the treatment of diabetes.

Alvin L. Bachrach was recently awarded a bronze medal, Class 1, by the American Medical Association for original research on the use of mixed helium and oxygen in treating asthma and other respiratory diseases, Dr. Wilhelm Winternitz leads in scientific hydrotherapy. A Jew inaugurated treatment of nervous diseases by electricity. Another invented a magnet to take foreign bodies out of the eyes. Kasimir Fajanas discovered the radio-active element, brevim.

Freund introduced sodium nitrate as an anti-blood coagulant. Robert Barany won a Nobel prize in 1914 for noteworthy work in medicine, Meyerhoff in 1922, for research in the transformation of energy in the muscles. Karl Landsteiner, another Nobel laureate, now engaged in research work here, received the award in 1931 for discoveries in classifying the different types of blood. P. A. Levene was recently awarded a medal by the American Chemical Society. Both he and Dr. Landsteiner are connected with the Rockefeller Medical Institute.

The chief of the laboratory service of Pasteur In-

stitute was Michael Weinberg. Ulrich Friedman was director of infectious diseases at the Virchow Hospital. In Berlin a special institute was established for Franz Friedrich Friedman for the purpose of discovering an immunization against tuberculosis; Dr. T. B. Sachs is president of the National Association for the Study and Prevention of Tuberculosis.

The discoverer of the Friedlander bacillus was a Jew. A forerunner of Koch, Walter Levinthal (his teacher was Franz Jacob Henle), was chief assistant in the Robert Koch Institute. Koch, one of whose chief assistants was Carl Franken, made his first demonstration of the anthrax microbe in Conheim's laboratory. The father of bacteriology is Ferdinand Julius Cohen, who with Nathaniel Pringheim completely revolutionized the study of botany. The foundations of micro-chemical methods in botany were laid by Professor Julius van Sachs. Voronoff's glandular operations are known throughout the world. Berman, an American gland specialist, has contributed considerable to this field. Dr. Bernard Aschner's researches on the pituitary, or "master gland," have won him world-wide acclaim.

Twenty-five American Jewish physicians recently were cited by various scientific societies for distinguished service to mankind: Dr. S. Bloom for rejuvenation of cells, Dr. Manfred Sakel for a successful method of treating dementia praecox by injections of insulin and more recently by metrazol, Dr. A. A. Berg for a new procedure for safely removing any part of an inflamed colon. Some years ago Dr. Samuel

James Meltzer introduced a non-surgical method of gall bladder drainage.

The late Dr. Edwin Beer, chairman of the medical board of Mount Sinai Hospital, was an authority on bladder tumors. Dr. Elias Lincoln Stern reported to the Pan-American Medical Congress that he had successfully injected Vitamin B₁ into the spine. Dr. Wilfred Bloomberg announced recently that the drug benzedrine was a specific to cure alcoholism, Dr. Felix Deutsch, a psychiatric cure for asthma. Dr. Isaac Michael invented a "cold light" for operations. The new plastic medical and dental instruments through which cool, white light passes directly into the operative and diagnostic area, are the inventions of Edwin Neugass. A new eyeglass lens for nearsightedness, a new formula for painless filling of tooth cavities, are other Jewish contributions of Jewish scientists. Dr. Gustave Gartner invented the Keolin theostat, the tonometer for measuring blood pressure, also the ergostat.

To group together more names of other Jewish scientific benefactors: Dr. A. H. Kanter, for a method of painless childbirth by the use of hypnosis; Dr. Joel Pressman for a new method of treating cancer of the lung; Dr. Isador S. Ravidin for a new form of anaesthetic which eliminates nauseous after-effects, producing a more rapid recovery to consciousness.

Dr. Benjamin Ulansky for instituting the use of electric current in the treatment of facial neuralgia, an ailment Dr. Henry Borsook has had notable success in treating, Dr. Charles Albert Elsberg, discoverer of

the "smell" diagnosis of neurological disorders, for perfecting a method of locating brain tumors that cannot be detected by X-rays. Dr. Leo Graetz, X-ray expert after whom a lamp was named, was the first to investigate the dispersal of electric waves, Hertha Aryton did notable research work in electric arc and searchlight. Another pioneer announces the perfection of a ten-cent X-ray test for preliminary examination in cases of tuberculosis, heart disease and stomach ulcers. Professor I. Seth Hirsch, New York University, recently was tendered a testimonial dinner by fellow doctors for his contributions to Radiology.

Dr. Herman Senator was a leading authority in Germany on internal medicine. Dr. Ismar Boas founded the first polyclinic for gastro-intestinal disease in that country. Dr. Adolph Magnus-Levy is noted for his work in diabetic coma. The founder of the histological school of dermatology was Dr. Ferdinand von Hebra. Paul Gerson Unna was another noted dermatologist.

In electro-therapy, Dr. Robert Remak did excellent pioneer work; his son, Ernest, wrote a popular work on neurology. The standard *Handbook of Neurology* was written by Dr. Max Lewandowsky. Dr. Max Bielschowsky was a famous professor of neurology in Berlin. Kurt Goldstein, formerly professor, University of Berlin, now connected with the Montefiore Hospital in New York, is one of the greatest living neurologists.

Dr. Immanuel Munk was a noted nerve specialist, Doctors Herman Munk and Herman Oppenheimer

were famous brain specialists. The foundations for modern gynecology were laid by Dr. Roderigo De Castro who fought the terrible plague in Hamburg in the sixteenth century. The whooping cough bacillus was discovered by Dr. Julius Ritter, the gonococcus of gonorrhea by Dr. Albert L. Neisser and Dr. Adam Politzer founded a new method for treating deafness to which his name has been given. Dr. William Feinbloom is the inventor of a teloptic magnifier, a new type of spectacle lens that enables many persons now classified as blind, to see again.

Dr. Jacob Da Silva Solis-Cohen was one of our greatest throat specialists. Dr. Abraham Zingher did notable work fighting infantile paralysis. Dr. Emanuel Liebman is among the foremost diagnosticians in the world. Two volumes paying tribute to his work have just been authored by brother physicians. Dr. Leon Lascoff is our most noted pharmacist. Dr. Lewis Lewin broke new ground in pharmacology and toxicology; Dr. Jonathan Pereira is a prolific writer on the subjects. Dr. Harry Friedenwald and his son Jonas are among our foremost eye specialists. Hans Adolph Boas brought the X-ray apparatus up to its present high rate of perfection, and Goldstein is the Father of the Cathode Ray.

Richard Willstätter, another Nobel laureate, opened up an entirely new field in organic chemistry with his discoveries of the molecular structure of chlorophyll, that green coloring in plant life of all kinds. If and when this precious substance is ever applied in a controlled manner, it might turn out to be a scientific

equivalent of the Fountain of Youth for which Ponce de Leon sought in vain. Dr. Benjamin Gruskin of Temple University recently reported success in fortifying body cells which had been invaded by bacteria through the use of a chlorophyll preparation, which is also claimed to relieve sinus infection and to cure the common cold.

An Austrian Jew, Dr. Otto Loewi, 1938 winner of the Nobel prize in medicine, may yet disclose the exact relationship of the chemical substances in the body to the nervous system and the heart. Dr. Milton C. Winternitz, Professor of Pathology, Yale University, announced a discovery about the blood that may help retard hardening of the arteries. Dr. I. S. Wechsler recently reported two new remedies to cure "Gehrig's disease," another Jewish doctor announced the segregation of the tuberculosis germ, another a new cure for certain types of heart disease.

Jews have great names in biochemistry. Dr. Casimir Funk, head of the State School of Hygiene, Warsaw, who coined the name "Vitamins" has announced two diagnostic tests for diabetes and cancer. The late Dr. Lafayette B. Mendell of Yale University was a co-discoverer of Vitamin A. Benjamin Harrow is a well known authority on the subject of Vitamins and also on atomic theory.

One of the foremost organic chemists is Carl Neuberg, who at one time directed the Wilhelm Institute for Biochemistry in Germany. America has eighty noted chemists of Jewish extraction. Herbert Freudlich is the authority on colloids and the water-bath.

One of the earliest chemical utensils was discovered by a Jewess, Marie, hence the name—"Bain-Marie." According to Jewish folk-lore, this "Marie" is none other than Moses' sister, Miriam. Carl Oppenheim has done notable work in food, Jerome Alexander, in colloid chemistry. Aaron Aronsohn discovered "wild wheat" in Palestine.

Dr. Carl Lucas Alsberg, head of the Food Research Institute at Stanford University, is probably the greatest food chemist living. His studies in fats and oils are standard. As chief of the Bureau of Chemistry, Department of Agriculture, he made a world-wide reputation. Louis H. Chernoff, a noted food chemist, is also with the U. S. Department of Agriculture.

Dr. Joseph Goldberger's researches in canned tomato juice and dried fruits are known to all modern dieticians. "Among the great romances of modern medicine is the story of how Goldberger of the United States Public Health Service discovered the importance of Vitamin B or G to the condition called pellagra," a disease now raging in Spain, says Dr. Morris Fishbein, editor of *The Journal of the American Medical Association*. This noted public health propagandist is chairman of its Commission on Foods and has been president of this Association.

Dr. Rudolph Schonheimer, who conducts the biochemical research laboratory of Columbia's College of Physicians and Surgeons, is at present working on a practical method of using light and heavy nitrogen to trace the path of food in the body. He may some day announce a discovery which will rid stout people of

their excess fat. The Research Institute for Food in Munich was in charge of Leo Greenhut, a Jewish biochemist as widely known in Europe as is Dr. Alsberg in this country.

Modern dieticians seem to have put the stamp of scientific approval on the dietary laws of the ancient Jews. The Hebrew word "kosher" means fit, sanitary, wholesome; "treife" means torn, unclean, poisonous. And the real reason why the eating of meat and the drinking of milk at the same meal are not considered good for the health by Jews is the scientific fact that these two necessary albumens take different lengths of time to be assimilated. It is the confusion caused by bad digestive timing that causes stomach distress.

PIONEERS IN PUBLIC HEALTH



Moses, founder of public health, was forever checking back on the sanitary conditions of his military camps. "Do not follow the Egyptians," who were sorely tried by disease, is something this great pioneer in public sanitation constantly enjoined upon his people. "The father of preventive medicine," is the way he is identified by the Smithsonian Institute which also labels the priests of Israel, "the first sanitary police."

Several million persons were infected by trichinosis in 1938 in the United States from eating raw or underdone pork, according to Dr. Thurlow C. Nelson, Professor of Zoology, Rutgers University. Two Jewish doctors of the Board of Health of New York City recently are reported to have discovered a way to detect this dread disease. Strangely enough, Europe only passed public health measures two thousand years after Moses led his people out of bondage and the cornerstones of modern hospitalization regarding the care and treatment of communicable disease are to be found in Leviticus, the third book of the Old Testament.

Ancient Jews were forbidden to eat cattle that had died of disease, whereas the Greek doctors knew scarcely anything of contagious diseases or direct transmission of disease. Ritual purification was required

of the Jews by washing after arising from sleep, prior to praying and eating, and before entering a holy place, and the number of fast days in their calendar has been very large. Maimonides was forever writing on cleanliness. "Most of the Law is intended to give its followers purity," he wrote time and again. The *Talmud* stresses the importance of regularity in eating meals and recommends a fish diet as easier to digest. It also says the first good word in literature for spinach; advocates the drinking of warm water as an aid to digestion. Talmudists, too, centuries back, were skilled dissectors and surgeons.

It was no heavenly miracle that spared the Jews in the Middle Ages from those terrible plagues that swept over Europe, one pestilential wave after another. "In the early Middle Ages the Jewish physicians played a role of the first importance," says Sir William Osler, "as transmitters of ancient knowledge . . . a long and honorable record in the medical profession." The historic work done by Dr. Isaac Israeli, mentioned previously, in allaying fever is of historic importance.

The Jews who dwell in the slums of the various cities of the United States have a lower death rate than any other immigrant class. So had the benighted denizens of the Ghetto along the Tiber in the Middle Ages. "The contribution of the Jew to the health of New York City is an asset of the first importance to the community," according to L. I. Dublin, statistician of the Metropolitan Life Insurance Company. "The sickness and death rates of New York City are

undoubtedly much lower because of the large proportion of Jews who make up the city's population." The recently published report of the city Health Commissioner clearly proves this.

Dr. B. W. Richardson says, "That they should exist at all is one of the marvels of history. That they should exist as they do, and at the present vitality they do, is another of the marvels of history."

Dr. Sigismund Schultz Goldwater, former head of Mt. Sinai Hospital, and formerly Hospital Commissioner of the City of New York, has revolutionized both the methods of hospital planning and public health administration. His pioneering work both for the United States Government and the Government of the City of New York is world famous. So are his departures in hospitalization. He has just been put in charge of Associated Hospital Service of New York. Paul Straus was Minister of Hygiene for France, and Professor Norton Charles Kahn has done important public health work for the United States Government and for the City of New York.

Dr. Ludwick Rajchman, a Polish Jew, heads the Health Department of the League of Nations. Dr. Milton Roseman has the chair of preventive medicine, Harvard University. Dr. Louis Ascher, former chief of the Berlin Health Office, is one of the founders of Social Hygiene in that country, whose representative at the Geneva Congress on Hygiene was Dr. Emil Seligman. Oscar Lassar, discoverer of skin remedies, also led the movement in Germany for public baths.

In this country, Dr. Simon Baruch, father of Bern-

ard Baruch, pioneered for years for public water treatments for health. "Two of the greatest hygienic thoughts of mankind owe their origin to Semitism," according to Karl Sudhoff, Germany's most noted medical historian, "the weekly day of rest and the direct prophylaxis of disease." Dr. Joseph W. Schereschewsky, who recently died in Massachusetts, was a leader in the field of industrial hygiene and Chairman, Occupational Diseases Committee, American Health Association, for many years. A noted cancer expert, he founded the Cancer Research Center, Harvard University and was Medical Director of United States Public Health Center. The contributions of his father, a distinguished scholar, will be detailed in a succeeding chapter.

The Essenes, about whom George Moore wrote in *The Brook Kerith*, bathed daily in spring water, as later the Scribes washed themselves from head to foot before inscribing The Torah. Public bathing, or baptism in water, is a rite directly traceable to this sect of ascetic Jews. John the Baptist was a member of these pre-Christians from whom the Baptists derive their name. Their creed of brotherhood was later crystallized by Jesus who continued their social custom of love feasts, as Christian monks continued their habits of self-denial.

In addition to the hundreds of millions of dollars that Jews give to their own poor, countless sums of money are donated by them to social welfare activities of all kinds, irrespective of creed or race. Einstein recently made an eloquent appeal for funds for the

Young Men's Christian Association. A one hundred thousand dollar gift has just been made from the Julius Rosenwald Fund of twenty million dollars to the American Hospital Association to be used for the study and development of group hospitalization for persons of moderate circumstances. Three quarters of this enormous sum already have been spent on educational work. Civic and charitable institutions of Cleveland were enriched in the will of Charles Lehman Richman by three hundred thousand dollars.

In 1936, the Joint Distribution Committee raised nearly three million dollars for overseas relief and the Council of Jewish Federations and Welfare Funds of various kinds to relieve their poor in this country amounted to something like fourteen million dollars. The figures are about the same for 1937. Over five million dollars was raised last year for the relief of European Jews in distress, indicating that the Jew always takes care of his own. One hundred and fifty great benefactions are listed in the 1940 edition of *The American Jewish Year Book*.

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CREATORS OF A NEW SCIENCE



Israel Zangwill told me in London in 1925, "The Jew has been able to enter into all the incarnations of humanity and be at home in every environment, because he is a common measure of humanity." Apparently this is an opinion which is shared by Aimé Pallière, a French Catholic who was destined by his family for the priesthood, for after long communion with his heart and with the truths of ancient Scripture, he became convinced that the ancient Jewish teachers were true leaders of humanity. Pallière now officiates as a rabbi in a Paris synagogue while maintaining the friendliest of relations with the Vatican. He asserts in his writings just as he preaches in the synagogue that mankind will never rise to essential principles upon which society must rest until it meets up with Judaism.

Throughout the ages in every country where the Jews have been able to huddle against the storm, they have been told by their rabbis that there is no forgiveness even from God in heaven for any transgression against their fellow men. Such trespasses, in the opinion of all Jews, are the really unforgivable sins. "The beginning and the end of 'The Torah,' according to Chief Rabbi Hertz of London, "the be-all and the end-all of all Scripture is disinterested service of others. With the recognition of this truth in the realm of

the soul begins the humanity of man.¹ The savage remains a savage as long as he hates."

In the Jewish Sabbath, Labor gets its first blessing in history. This day of sacred rest Emerson calls "The jubilee of the whole world." The Mosaic injunction "six days shalt thou labor," gave to the common man the first opportunity to lift his head, to straighten his back, to look up at the stars. As defined by Josephus, the Sabbath was a rest from physical labor, just as the Sabbatical or seventh year, during which time the land is to lie fallow, has come to mean that year in which scholars permit their faculties to rest so that they may be strong enough to attack their studies with renewed insight. Our Statute of Limitations might even be traceable to this Jewish septennate, for this was a holiday from all debts, a time when the debtor could get another start, a year of freedom for all bound men.

These five simple words, "six days shalt thou labor," it might be said, constitute the greatest labor document in history. In this country notable leadership was provided by Samuel Gompers when the labor movement first crystallized; today Sidney Hillman and David Dubinsky are contributing constructive statesmanship to the cause of labor. German Socialism was founded by Ferdinand Lassalle.

Rome had grandeur. Greece had glory. But the working classes knew none of these precious things. They were of so little importance to the body politic, that ancient historians scarcely mention them, nor can any reference to them be found in the ancient histories,

even with the aid of the strongest magnifying glass.

The toiling, sweating masses of mystical India were kept on the Brahmin treadmill in the same callous manner used against the plebes on the classical treadmill by their masters, the purple patricians. In all the imaginative literature of India there is no phrase of social protest to the effect that the rich are "grinding the faces of the poor," no clarion note of social reform such as rings throughout all the writings of the Prophets and the much misunderstood Pharisees.

These ancient Humanists were the original battlers for democracy, progress, equality. Professor Louis Finkelstein in his recently-published studies of the sociological backgrounds of their faith, describes these ancient Humanists as "a primitive Consumers' League, for its members were prevented by their adherence to its platform, from making purchases at the shops of those transgressors of the law."

The esteem in which the ancient leaders of Israel held the workingman is one of their greatest legacies to western civilization. God is always pictured in the Bible as a day laborer, never as an idle dreamer in Olympian clouds.

Every Jew was a laborer first, a prophet, a psalmist, afterward. The Old Testament writers are one in their abomination for sloths, one in their praise for the industry of the bee. *Avodah*, the Hebrew word for worship is in very fact the same word that is used for labor which probably explains the somewhat ant-like activities of Jews everywhere.

The writings of the ancient Jews might be said to

constitute the first great literature of social protest, the first great humanism in literature, great because of its human stresses, great because of its human concerns. Their long line of Holy Men were all aflame with the passion for social justice, a passion which still is the pulse-beat of most Jewish hearts. At the recent memorial rites to the late Supreme Court Justice Benjamin N. Cardozo, one noted jurist after another rang the changes on what they called his "passion for justice."

Words entirely new to society's underdogs are found in these inspired Hebrew utterances which have been the bread of life for millions sorely tried by life. "Brother," "brethren," are concepts not to be discovered in the poetic Vedas of Brahminism or in the mystical Books of the Dead indited by the ancient Egyptian Mystics. The Prophets of Israel told the common man that his will was free, the biggest news story in the entire history of democracy.

Social progress draws inspiration from Deuteronomy which argues for the release of a debtor, another new idea in ancient times. Equal division of the land is also advocated. Not a single member of the Essenes possessed any private property, according to Philo, that is, "a house that does not at the same time belong to all." Pliny said these first believers in brotherhood were the marvel of the world.

Ezekiel was the spiritual father of political democracy. With him the individual became responsible for his own actions, not the tribe. He also championed human liberties with the same fervor that Pope Pius

XI exhibited. He was the first to tell his "brethren" that they and nobody else, were the captains of their own souls. According to Alpheus T. Mason, Professor of Politics, Princeton University, *The Brandeis Way* (the title of his book), makes democracy something more tangible than a couple of political abstractions, "political freedom," "spiritual freedom."

It is comforting for Jews to remember that if one of their number invented so terrible a weapon of warfare as poison gas, thousands of others have died for peace. Absalom, third son of David, was the Father of Peace. In France the High Priestess of Peace is a Jewish woman, Mme. Louise Weiss; Estelle M. Sternberger heads World Peaceways in this country. Ivan Bloch wrote a famous treatise on universal peace; Rozsika Schwimmer organized the ill-fated Ford Peace Ship and two Jews have been given Nobel prizes for their efforts to create world peace. The mother of "General" Ballington Booth, founder of The Salvation Army, was Mary Moss, a Jewess.

Isaac Périere tried to organize a peace conference with the Holy See as arbiter between France, Germany, Italy and Austria in 1878. Joseph Salvator hoped to make the Holy City the peace center of the world. Salomon Oliver Levinson, who originated the movement for the outlawry of war on December 25, 1921, which resulted in The Briand-Kellogg Peace Pact, endowed the University of Indiana with a \$50,000 Peace Foundation. Abraham Pincus, a Russian-born Cleveland oilman and war veteran, spends most of his time and money trying to bring about world

amity. Alfred H. Fried became a Nobel laureate in 1911 for founding the German Peace Society.

From Moses down, Jews have provided great statesmen. The Prophets were men of public affairs. In our own times Disraeli, Lord Reading, Herbert and Montague Samuel, Luigi Luzzati, Leon Blum, Walter Rathenau, Sternberg, Maxim Litvinoff, Paul Hymans, are all prominent names. Gambetta is said to have been a Jew and so were many other European statesmen. Said ad-Dunala ibn As-Safi was Chief Advisor to the Mongol, Il-Khan, and "the Eternal City" had for Mayor a Jew who was elected term after term by acclamation, Signor Ernesto Nathan. If diplomacy could be considered a science, the list of names would prove still longer.

Many of the world's noted economists and statisticians are Jews. "The founding of the Jewish state of Moses," Friedrich Schiller, the great German poet, wrote in his *The Mission of Moses*, "is one of the most important accomplishments that has taken place in history." Germany gave Karl Marx, Lassalle and Franz Oppenheimer whose book *The State*, is world famous; also Professor Alfons Goldschmidt for whom Einstein had so great a regard. Italy's foremost economist is Ludwig Hamburger. In England Harold J. Laski interprets modern economic trends and before him David Ricardo, considered by many to be the founder of political economy.

Upon the death of Henry George, Joseph Fels assumed the international leadership of the Single Tax movement, spending his time and fortune equally be-

tween England and the United States. In 1909 he established the Fels Fund Foundation here as a clearing house for the movement. Other noted economists are Professors Seligman, Taussig, Hollander, Viner, Perlman, Wolman, Leiserson, not to mention the many sub-varieties of left wingers or Paul Warburg who established the Federal Reserve Bank, or Isidor Lubin, foremost labor statistician in America.

The first meeting to consider organizing the American Red Cross was held in the home of Adolphus S. Solomon and when the International Red Cross convened in Geneva, he and Clara Barton represented this country. Pantelemion Smallens headed the Russian Red Cross. Deaf mutes were first taught lip reading by a Jew. For years Dr. James Sonnett Greene pioneered in the correction of speech stutterers. Through a recent gift of \$250,000 from the Littauer Foundation, he now directs the National Hospital for Speech Disorders where miracles in speech correction are daily occurrences. The first method of teaching deaf mutes was established by Jacob Rodrigues Perira. One Jewish physician instituted the famous Hospital for Joint Diseases in New York; another, an institute to relieve foot sufferers.

A Jew heads the American League to Abolish Capital Punishment; another, Louis Gompertz, founded the Royal Society for the Prevention of Cruelty to Animals. James Speyer is the chief supporter of the famous Ellin Prince Speyer Hospital for Animals in New York City. Uriah P. Levy, the highest ranking naval officer of his day, abolished flogging in the American

navy. Adolph Crémieux, as Minister of France in 1848, abolished slavery in the French Colonies. Lillian D. Wald inaugurated "the hospital that walks upstairs," as the Henry Street Nursing Settlement has been called. Sam A. Lewisohn's prison reform work is nationally known.

That the mothers of the East Side slums of New York City might get pasteurized milk for their infants, Nathan Straus opened free milk stations. Sophie Irene Loeb, for seven years president of the Board of Child Welfare, New York City, established the first child welfare building in 1924 and four years later was instrumental in calling the first National conference for dealing with mothers' aid laws. Emil Berliner is almost as well known for his twenty years' fight in Washington against the ravages of raw milk, as he is for his invention of the telephone transmitter, the gramophone and the microphone. The Sarah Berliner Research Fellowship was established by him in memory of his mother, to enable women to carry on scientific investigations; it was the first of its kind, anywhere.

Julius Rosenwald furnished the free blood tests and doctors to the Mississippi negroes stricken with pellagra. And the whole Responsa Literature of the Middle Ages shows unmistakably what keen students of human nature were the rabbis; also, how dependent on their advice in daily affairs were their bewildered flocks. The late William Loewenstein, of New York City, left a million dollars with the New York Com-

munity Trust, to establish restaurants in which needy persons may be fed free.

It would take much more than a closely printed page merely to enumerate the monetary gifts made by Jews to the public welfare and institutions of learning. When the careers of the Jewish "capitalists" are consulted in *Who's Who in America*, and other biographical works of reference, it is generally found that their activities are mainly concerned with the giving away of money to one educational or philanthropic institution after another.

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HIS TRUE WEALTH



His zeal for scientific truth constitutes the true wealth of the Jew, for published studies in *Fortune* magazine show that the wanderer is far from the top of the list in the possession of worldly goods. When Felix Warburg died recently, the newspapers stressed the amount of money he had given away to the underprivileged, his ceaseless gifts of time and thought to institutions of learning, his princely gifts of art treasures to the public. Jules S. Bache donated his valuable art collection valued at twenty million dollars to the State of New York; Samuel Franko, his precious orchestral manuscripts to the New York Public Library. Friedsam, Altman, Blumenthal, all turned over their priceless art collections to the Metropolitan Museum of Art in New York City.

It is quite the same with every other "rich Jew," for that matter. Invariably their wills provide huge legacies for colleges and hospitals. Dr. Jesse G. M. Bullowa's pneumonia serum was made possible by funds of one hundred and seventy-five thousand dollars which came largely from Lucius Nathan Littauer. Both are Jews. Dr. Bela Schick, pioneer in the field of "serum sickness" was recently awarded the Addington Gold Medal for humanitarian services. Franziska Speyer (an original believer in Dr. Ehrlich) heavily subsidized the Berlin Institute for Serum

Investigation; and Osiris Iffler was one of the greatest benefactors of the Pasteur Institute in Paris. Murray Guggenheim just bequeathed an additional five million dollars to the Murray and Leonie Guggenheim Foundation which he and his wife incorporated in 1929 for "the promotion, through charitable and benevolent activities, of the well-being of mankind throughout the world."

The Schiffs, the Littauers, the Guggenheims, the Seligmans, the Rosenwalds, the Lehmans, the Lewishohns, the Baruchs, the Laskers, the Fels', the Fleischmans, the Sedars, the Speyers, the Lamports, the Franks, the Falks, the Pams, seem to have entered into a kind of friendly rivalry to see which Jewish family can do the most for their fellow men, Gentile as well as Jew. Samuel A. Sicher, like his brother, Dudley David Sicher, devoted his life and wealth to humanitarian activities.

It is no different in Europe of old, where the Montefiores, the Crémieux's, the Rothschilds, the Monds, the Samuels', the Duveens, the Cassels' have poured fortunes into all kinds of good works. Alliance Israelite Universelle has helped Jews in every European City. The Sassoons are called the "Rothschild's of the East." Mordecai Meisel did for the sixteenth century European Jews what these noted benefactors did for the twentieth, what Israel Matz is trying to do today for impoverished Hebrew scholars in this country and abroad.

In 1937 institutions dedicated to philanthropic, cultural, research and scientific endeavors in this country

alone were enriched by Jews more than three million, six hundred and thirty thousand dollars. August Heckscher, whose grandfather was a distinguished German rabbi and author of important rabbinical works, is noted for his many humanities in this country. He built a five million dollar hospital in Munich after the World War, as before him, Jacob Loeb, founder of the famous "Loeb Classics," left a million dollars to this same German city for the establishment of an Institute for Experimental Psychiatry and this since the Nazis came into power.

Max Adler gave a Planetarium to the Chicagoans, Adolph Lewisohn a music stadium to New Yorkers. Other "rich Jews" provide free concerts in summer. Recently Lucius Littauer, who gave Harvard University its School of Public Administration, left millions "to enlarge the realms of human knowledge." Edward E. Filene in his will did about the same magnificent thing with his Twentieth Century Fund. The surviving partner of this great Boston merchant, Louis E. Kirstein, only recently gave a quarter of a million to the Boston Public Library. The "Louis E. Kirstein Fellowship" in Harvard Medical School, was raised by eighty-nine of his friends in honor of his seventieth birthday. The Lasker Foundation for Medical Research, Chicago University, was founded by Albert D. Lasker and his first wife.

Max Epstein provided Chicago University with its imposing Social Hall and Dispensary, and a Loan Fund to the Harvard Law School. What *The New York Times* said about the Guggenheim Fellowships as

"Ambassadors at large in fields more fruitful and significant than political diplomacy," might almost be said about the Nieman Fellowships established at Harvard University, a novel experiment for rounding out the academic education of newspapermen. This million dollar fund was established by Mrs. Agnes Wahl Nieman, widow of the founder of *The Milwaukee Journal*. More recently, the foundation that administers the estate of the late Michael Friedsam, gave one million dollars for the improvement and expansion of religious education.

Harvard University was the largest public legatee of Jacob Loeb's will, receiving three hundred thousand dollars to establish the Loeb Classical Library and five hundred thousand dollars went to the American School of Classical Studies at Athens; Columbia University was also remembered; also an educational institution in Bavaria. Many other similar bequests are listed in the January 1938 issue of *The American Hebrew*. Mr. Falk, the son of a poor immigrant tailor, left ten million dollars "for education and research in social relations," a foundation unique if for no other reason than that it is unrestrained in its provisions by the founder's own ideas. Baron de Hirsh is said to have lavished a hundred million dollars on schools and welfare work abroad.

Dropsie College, Philadelphia, practically underwrites all the expenses of its students, just as the Institute for Advanced Study is the first university in history to free its professors from money worries so that they can give all their thought to scientific pur-

suits. Abraham Flexner, who established it, has created about the same revolution in education at Princeton as his famous brother, Simon, did in medicine at the Rockefeller Medical Institute.

Now in its fifth year, this professors' college probably has on its faculty the most distinguished teachers in the world. The brains of Dr. Flexner and the millions of D. Louis Bamberger and Mrs. Felix Fuld brought into being this notable Research Institute which is dedicated, in Dr. Flexner's own words, to "the fearless and unhampered search for truth, the unlimited cultivation of the natural curiosity of human beings within the fields of science." Was ever the credo of all pure scientists more correctly crystallized?

"Hebrew University is a modern university in the best sense of the word," according to Chancellor Harry Woodburn Chase of New York University. Mois H. Avram inaugurated the campaign to raise the necessary millions to get this university, his alma mater, out of debt and to make it one of the great institutions of learning. Daniel Guggenheim, another alumnus, presented New York University with its famous School of Aeronautics, the best equipped and the best staffed of any in the world. Recently, the most powerful aviation engine was developed here. Before this, Henri Deutsch de la Meurthe founded The Aeronautical Institute of St. Cyr, besides offering many valuable prizes as well to encourage aviation's development.

Dr. Alfred North Whitehead, professor of philosophy, Harvard, making a comparison between his own

and the Hebrew University in Palestine with its ten magnificent buildings and open-air theater stadium, said, "There is in each case a group of heroes upholding ideals amid every discouragement of physical difficulty. The history of American culture during three hundred years and the history of Hebrew culture during three thousand years, bear witness for the force of ideas in greatly preserving and transforming the higher life of humanity."

The Jews have opened up many new avenues of intellectual pursuits, added many noted names to music, to poetry and belles-lettres. Herschel was the leading musical authority of his day in England; Ehrlich might have become a painter. It is not intended to imply here however that the Jews possess any special wealth of intellectual endowment despite the claim of Sir Arthur Keith, British scientist, that the Palestine cave man had a brain capacity considerably larger than that of the modern man. Their leadership, according to Einstein, who has the makings of a great violinist, comes as a natural result of the esteem that they have for scientific accomplishment, their age-old reverence for wisdom. God, in the opinion of Jews, is Supreme Reason. Professor Hermann Cohen spent his life trying to prove that Judaism was the religion of reason.

Scarcely had Greek allied itself with Hebrew thought when Jews in Alexandria turned out a Greek prose comparable with Plato's. The Hebrew Bible was the first literary masterpiece to be translated from one language to another and according to a national

survey just concluded by Dr. George Gallup, it still remains the most popular book in this country. Two hundred years before the beginning of the present era, the Greek-speaking Jews of Egypt rendered the Book of Books into Greek.

"The father of Church history," Johann August Neander, was born a Jew. The first literary apology for Christianity, the Epistle to the Hebrews, was penned by another Jew. It was Philo, a famous Alexandrian mystic, known to history as "Philo the Jew," who acquainted the Church Fathers with the allegorical interpretation of Scripture. Martin Luther was said to have been a devoted student of Paulus de Santa Maria's *Bible Commentaries*. The author of them was born Solomon Levi.

William Solomon Alexander, first Protestant Bishop in Jerusalem, had Jewish parents. His adaptations and translations of the New Testament, are credited with changing the faith of many a Turk and Arab.

Bishop B. J. Bettelheim, also of Jewish ancestry, brought the "good news" through translations of the Gospels, to the Japanese people. No missionary is more revered in that country by the converts to Christianity.

Samuel Isaac Joseph Schereschewsky, Missionary Bishop of the American Church in China, called by Professor Max Müller, one of the world's great Orientalists, translated the Christian Prayer Book into Wen-li, or classic style. Though paralyzed in one hand, he wrote a Chinese grammar and a Chinese dictionary. He also translated the Gospels into Mongolian

for which language he had compiled a dictionary, and the entire Bible into Mandarin.

These three Jews are largely responsible for the world-wide spread of Christianity!

It will surprise many members of the Ozanam Guild, a Roman Catholic organization, to learn that their society is named after a Jew and that two hundred years before this convert, Antoine Frederic Ozanam, founded the celebrated Society of Saint Vincent de Paul, his ancestor, Jacques Ozanam, also a French Jew, had attained a fame almost equal to that of this great churchman, as a scientist and mathematician. The founder of the Congregation of the Immaculate Heart of Mary, which afterward became merged in the Congregation of the Holy Ghost, was the son of a Jewish rabbi. His name was Libermann. He received the name "Jacob," a good Jewish name, at his circumcision.

Jews have always excelled as linguists, a fortunate circumstance indeed for culture, for many of the Greek and Latin masterpieces of the Golden Age, exist today only in the Arabic translations they made when the schoolmen of Europe were unconcerned about the classic knowledge of the past. That these wanderers served the Orient as well as the Occident, is shown by the fact that it was Misha Allah's adaptations of the Greek Astrolabe, which introduced this instrument then used for measuring the altitudes of planets and stars, to the Moslem world. His translations were later perfected by Joseph Vichino, a Portuguese Jew.

The typical Russian Jew, or German Jew, or French Jew, for that matter, is a man of many languages. The chair in linguistics at Yale University was held for many years by the recently deceased Professor Edward Sapir. Many other Jews have held similar academic posts throughout Europe and America. In Bible times Solomon was said by legend to have known even the language of the birds.

Herman Bamberger Vamberg in addition to his native Hungarian, mastered the German, Slavonic, Latin, Greek, Danish, Swedish, and English languages. To these many tongues, he later added Ukrainian, Arabic and a number of Persian dialects. He knew Hebrew from childhood and died an intimate of the Sultan, and an authority on Turkish. Vamberg was the first scholar to pierce the heart of modern Turkey. He wrote the Turko-Tartar Dictionary and also compiled the first German-Turkish Dictionary. He is only typical, for a dozen other such Jewish linguists can be enumerated.

Esperanto is an invention of a Jew, Ludwik Zamenoff. This international language is widely used in Holland and Sweden. The Esperanto League boasts a membership of a million and a half, prints 4,000 books and pamphlets, magazines. In Sweden, an Esperanto magazine is printed in Braille. Another Polish-Jew, Dr. Maksymilian Rose, was that country's outstanding brain specialist.

Hartwig Derenbourg, a member of the French Institute, was a noted Arabic scholar, Professor Arsene Darmesteter, a great historian of languages. His

brother, James, was quite as well known an Orientalist as was Professor Salomon Munk, College de France, also a member of the French Institute. Professor Julius Fürst, Leipzig University, was an authority on Aramaic languages.

Fritz Mauthner was an expert on foreign languages. Israel Gollancz, Professor of English, King's College, London, was an authority on early English texts. Italy's foremost philologist was Graziadio Isaia Ascoli. John Florio, the noted Elizabethan lexicographer, made the classic translation of Montaigne and the earliest known translation from Syriac into Arabic was made by Masarjawaih, who translated the Pandects of the Presbyter Aaron into that language in the ninth century.

While the scope of this survey does not permit the introduction of any but those Jews who have made contributions to exact science and invention, passing reference might be made to a few outstanding academicians, whose fame is world-wide. Salomon Reinach's work on comparative religion is standard, so are Lucien Levy-Bruhl's studies of the mind of primitive man. Moritz Winternitz's books on India are authoritative. A leading authority on Mohammedan literature was Ignatz Goldziher. In the Middle Ages, Averrōes (ibn Roshd) was the foremost Aristotelian translator. Joseph Halévy wrote thirty volumes of *Orientalia*, Professor R. J. H. Gottheil who organized the American branch of the Zionist movement inaugurated by Theodore Herzl, was noted for his Oriental studies. Dr. Solomon Schechter, one-time president of the

Jewish Theological Seminary, discovered important Hebrew manuscripts that have led to the re-writing of several chapters of Jewish history. Steinschneider might be called the father of Jewish bibliography, as Heinrich Graetz might be called a second Josephus. Leopold Zunz tried to make a science out of Judaism. A. S. W. Rosenbach's pioneering propaganda in making people book-conscious, has revived interest in many half-forgotten masterpieces of literature.

The recently deceased Professor Louis Stern originated the I.Q. (intelligence quotient tests), Professors Goldenweiser and Boas knocked all theories of racial supremacy into a cocked hat. Professor Henry Schef-fer occupies Royce's chair in philosophy at Harvard University, Professor Hugo Bergmann introduced the students of the University of Palestine to metaphysical and philosophical problems. Professor S. Alexander, the famous author of *Space, Time and Deity*, was an active Jew. Professor Harry A. Wolfson, Harvard University, is an authority on Spinoza and medieval Jewish philosophy.

Noted American Jewish Professors, to mention just a few names, include Irwin Edman, Morris R. Cohen, Horace Mayer Kallen, Harry A. Wolfson, Kaufmann Kohler, Max Leopold Margolis, J. Salwyn Schapiro. Though connected with no institution of learning, S. M. Melamed, like Joseph Jacobs before him, provided scholarship with many rare psychological insights into the Jewish question. Two others must be noted here, both of whom are dead, Cyrus Adler, President of the Jewish Theological Seminary whose

scholarly attainments were recently given world-wide recognition on his seventieth birthday, and Felix Adler, founder of Ethical Culture, whose great services to a scientific ethics recently were commemorated at a mass meeting of scholars over which Professor John Dewey presided. And the great Shakesperian scholar, Sir Sidney Lee, was born Solomon Levi.

LIGHT IN THE MIDDLE AGES



When Daniel, interpreter of Nebuchadnezzar's dreams said, "Many shall run to and fro and knowledge shall be increased," was this ancient seer by any chance forecasting the dramatic role the "little people" were to play in the "ten dumb centuries" as Thomas Carlyle called them? In the Middle Ages the Jew was shuttled back and forth from a benighted Europe to the Orient, then into the glories of a renaissance of science and art. He was, in actual fact, the one cultural link between the dark ages on the continent and the dazzling civilization on the Bosphorus.

The medieval Jews carried heavy packs on their world-weary backs. They also carried translations in their retentive minds of the Arabic and Greek and Latin learning they had picked up on their wanderings. Footsore they were, but they also were very much alive to the claims of natural science. In fact, these bearded peddlers held aloft the light of Arabic learning in these dark days of the Occident. Records indicate that Immanuel Ben Jacob Bonfils invented the decimal fraction in fourteenth century Europe and for the first time applied it.

Cecil Roth and Louis Gershenfeld, after painstaking investigations, have identified as Jews innumerable Arabian scientists who flitted through the fog of this misty period. Many of their names in cold print

look like cross word puzzles, or as if they had been tumbled out of a type case; Kaleb Afendopolo, the noted Karaite poet, for instance. Isaac Israeli who introduced medicine into northern Africa was also known as Isaac Judeus.

Until the publication of the studies made by Solomon Munk, last century, ibn Gabriol (as Solomon ibn Gabriol was frequently called), was not known to be the scholar behind the Moorish-Christian mask of "Avicebrol." His *Fountain of Life*, a systematic exposition of Neoplatonic philosophy, is a work of most curious fortunes. Originally written in Arabic, it was rendered into Hebrew from which a Latin version was eventually made. Through the Latin translation which acquired the author's name in the mutilated form of Avicebron or Avecebrol, scholasticism became saturated with its philosophic ideas. This work played an important role in Christian philosophic teachings, becoming accepted as the writing of some scholastic philosopher who came down through the centuries recognized by none and forgotten by his own.

Imagine how much greater this "Jewish Plato's" influence would have been had his philosophical writings been accessible to the scholastic world in the original language. As it is, the very name (or names) of this great Jewish thinker is wrapped about by the same complexity and confusion as that of many others of the time. One of his own great contemporaries, the French Rabbi Solomon Isaaci, is quite as obscure a figure. Popularly known as "Rashi," this scholarly

commentator also went by the names of Shelomo ha Zarfati, Pharshandata, Solomon Isaaci and Rabbi Solomon Yitzhaki.

Maimonides, considered the greatest thinker of the period by many authorities, was also a man of many names, "Abu Imran Musa ibn Maimum" being the most popular with the Arabs, and "Rambam" with his own race, who arrived at this name through telescoping his full name, Rabbi Moses ben Maimon. "From Moses to Moses, there never arose a man like Moses," say the Jews of this gifted scientist whose works inspired the German philosophers Hegel and Leibnitz, and Spinoza.

Two illustrious Jewish names shine through the scientific dimness of the twelfth century. Abraham ibn Ezra and Abraham Bar Hiyya Na-Nasi. The former, known as "the roving scholar," was an authority on Biblical exegesis and the author of a Hebrew grammar. The latter is equally known to Spanish historians as an astronomer and a mathematician. He is credited with compiling the first systematic outline of astronomy and his geographical treatise attempted an explanation of the earth's sphericity. He also bore the name "Savasorda." Levi ben Abraham Ibn Hayyim in the next century roused the ire of orthodox Jewry and Christianity alike by his organization of "secular science." His elementary encyclopedia might even have been the inspiration for the great Humanists, Diderot, d'Alembert and Voltaire, who later continued his fight for human values, human rights.

In this darkest period of European history, these Jewish agents of civilization sowed seeds of intellectual light wherever they went. Jacob ben Makir eloquently pleaded for the rights of reason and Juda ben Solomon ibn Matka, composed an Arabic encyclopedia which he later translated into Hebrew. Moses de Leon in the thirteenth century taught the revolution of the earth as a cause for day and night. His revolutionary thesis was later developed by Isaac Solomon in his *Mishpete Hakohabim*.

Zohar, the textbook of the *Cabala*, is a work antedating Copernicus' time. In it one meets with the statement that the cause of the succession of day and night is the earth's revolution on its axis. It bore the name of Rabbi Simon ben Yochai who lived in the third century. Its real author is generally accepted to be Moses de Leon. A Jew translated Ptolemy's *Almagest*. Another assisted in the first translation of the Indian fox fables (*Kalila we-Dimna*); the first furnishing the Middle Ages with the basis for its astronomical science, the second supplying European poets with colorful literary material.

The Latin translations of the works of Isaac Israeli, the Kairawan physician by the Monk Constantine, attained considerable fame. Later they were plagiarized, especially by the medical writers of the period. Israeli's treatise on fever was esteemed of high worth, a translation of it being used as a textbook for centuries. His writings on dietetics remained authoritative for five hundred years.

What this Jewish physician did for medicine in

Oriental lands Shabbattai Donnolo did for European medical practice in the tenth century. A leader of the Salerno Medical School in its early obscure days, his *Materia Medica* is probably the oldest original work on medicine in the Hebrew language, for Donnolo was one of the first Hebrew writers on medicine.

Hasdai Ibn Shaprut's translation of Dioscorides' *Plant Lore* was used as the botanical textbook of medieval Europe. Abraham Ibn Ezra whose name was often corrupted in Latin "Avenare," philosopher, poet, astronomer and mathematician, had virtually all his scientific writings translated into Latin. He is immortalized among the expounders of mathematical science in an Italian church fresco representing the seven liberal arts, just as the noble head of Einstein is chiseled on the front facade of the Riverside Church in New York City. Browning has celebrated his fame in his poem, Rabbi Ben Ezra, "may his tribe increase."

The second century Rabbi Samuel Yarhinai, is looked upon by many as a forerunner of Herschel, Jacobi and Einstein. This Jewish sage boasted that the intricate courses of the stars were as well known to him as were the streets of Nehardea in Babylonia. Herschel could have said the same about the courses of the stars and the streets of London. Rabbi Gamaliel, who is said to have made use of a telescope, was equally celebrated as a mathematician and astronomer.

It has been demonstrated that certain ordinances in the Mishna are based upon geometrical propositions which could have been known to but few mathematicians of that time. Farther back, in the third cen-

ture, Rabbi Joshua is credited with having calculated the orbit of Halley's comet.

Not more than two hundred years after the settlement of Jews in Arabia, a large number of Jewish poets appeared among the disciples of Mohamet. Throughout the Middle Ages, under generally unfavorable conditions, Jews taught and wrote Arabic, Spanish, French, German. Polyglot people that they are, the Jews never have allowed Hebrew, which they consider the Sacred Tongue, to become a dead language. Since Bible days they have continued to use it for literary expression and in all their wanderings, in all their exiles, they have, somehow, managed to keep the tongue alive. Palestinian Jews for the last thirty years have made Hebrew their daily language.

PRINTING—THE SCRIBES



Of almost equal importance with their pioneering-work in medicine in the Middle Ages is the important role the Jew assumed in spreading the magic of the printed word in this dark period. It is no exaggeration of fact to state that the wandering Jew has done as much for printing as any one else, for wherever he migrated he spread the gospel of printer's ink. He was the first to print books in Portugal, Africa and many points east. His Bible was in Hebrew type ninety years before the New Testament was printed in Greek by the church.

Twenty years before the Portuguese did any printing whatsoever in Latin, the Renaissance Jews, if these poor devils could be so-called, had printed their own sacred books which they hid in their packs. When they escaped from Portugal they carried their heavy printing presses with them as far east as Constantinople, where they introduced the art of printing to the Byzantine communities.

The New York Public Library recently displayed two beautifully-bound Hebrew books, typographically the same, one dated Lisbon 1489, the other Constantinople 1505. Both were printed by the same Jewish refugees! Also on exhibition was a philosophical commentary in Hebrew on the books of Moses by Moses Nahmanides which had been printed three

times within a decade in three different cities before the discovery of America, viz.: Rome 1480, Lisbon, 1489, Naples 1490. And it is a beautiful piece of typography.

Hebrew type is mentioned as far back as 1444. Over two hundred Hebrew presses sanctified the power of the printed word in the fifteenth century in Spain and Portugal. In Italy some twenty-five presses were then doing the Word's work. Writing on the *Origins of Hebrew Typography in England*, Cecil Roth states, "In the case of Portugal, indeed, Hebrew books were actually the first in any language in that country, a primacy which applies to the continents of Africa and Asia (outside China)."

How much influence these Jewish printers had on the revival of learning, in the period that followed, is a subject yet to be explored by scholarship. Apparently their printing activities hastened along the Reformation for Rashi's *Commentary on the Pentateuch* appears to have been the first printed work dealing with ancient scripture to get north of the Alps. Eberhard of Württemberg, founder of Tübingen University, was said to be diligently studying the Old Testament on the eve of this movement and the Protestants were all men of the book.

Without paper upon which to print the liberating word, the democracy of learning might never have been. It was this cheap medium as much, perhaps, as anything else that brought to the benighted masses of Europe the precious things of knowledge that had always been the exclusive possessions and preroga-

tives of their ruling classes. The earliest paper mill in Europe was established in Xativa in the thirteenth century. That its importance was recognized by the Spanish government is evidenced by the fact that its Jewish owners were exempt from all taxation. Two years before Napoleon got into Cairo, that hot-bed of religious fanaticism, the cool magic of the printed word was being spread by Hebrew presses.

The printed book itself for many years was a mere copy of calligraphers' manuscripts, an imitation of the slower processes of the Scribes as the Jews called their hand letterers. In *Romola*, George Eliot tells again the old story, tells the old complaint of how the Scribes' labor of love was supplanted by the machine. However, these beautifully illuminated manuscripts have outlasted many of the printed books that came long after. Jews from the most ancient times have looked upon the work of their Scribes as something God-like.

With these early newspapermen, as you might call them, the pen really became mightier than the sword for the first time in history. In the exquisite handwritings of these Scribes are to be found those elements constituting the eldest portions of *The Talmud*. These writing men of the post-exilic period founded schools everywhere, popularized the Law as journalists today popularize everything. Asked to explain the essential commandment of the *Torah*, Hillel's reply is characteristic of the Scribes' ethical point of view. To his Gentile interrogator, Jesus' teacher stated, "Do not

unto others as you would not that they should do unto you."

The Jewish calligraphers began where the Prophets left off and they inspired almost as much esteem in the eyes of their brethren. It was the Scribe, Ezra, according to Jewish tradition, who restored the precious pre-exilic literature, and his fellow penmen are credited with reviving the Sacred Tongue which had all but been forgotten in the long night of Babylonian bondage.

The original meaning of the Hebrew word *soferim* was "scribes" which in turn is synonymous with "wise men." Josëf Israëls' famous painting *The Scribe* would have been titled *The Scholar* by any other painter but a Jew. Ezra who is supposed to have led the return from the Captivity, is called reverently, "The Scribe of the science of the Supreme Being unto all eternity."

Calligraphy had the same fascination for the Jews of old as typography had for the medieval Jews, who looked upon the invention of printing as "the art of more than writing with many pens." The most typical success story in Jewish folklore deals with the tale of the humble shop-keeper who became prime minister to King Babus of Granada because of his beautiful handwriting. An important Talmudic treatise advises, "Serve him in a beautiful manner, prepare a Sefer [book] written with a fine pen by an expert Sofer." The inspiration for this aesthetic impulse comes from Exodus 15:2, "This is my God, and I will beautify him," sometimes rendered, "He is

my God and I will exalt him." Those beautiful illuminations of the Hebrew Scrolls to be seen in the Art Museums of the world are the work of these Scribes who were enamored of beauty of outline. They represent Israel's most authentic gift to the graphic arts. Contemporary typographers hold the memory of Emanuel M. Diament in great esteem.

The Scribes were in charge of those Hebrew Schools which for nearly five hundred years saw the rise and fall of the Roman and Greek academies. They were, in fact, the only ones functioning in Europe in that dark period. The Scribes too it was, who taught Hebrew to the children who heard almost every other language but it. "The more study the more life, the more schooling the more wisdom," it is plainly stated in the Ethics of the Fathers part of The *Talmud*, and the very word *Torah* means "doctrine," "teaching."

Hillel the forerunner of these Talmudic Patriarchs, often said to his students, "One hour of science and good works in this world is better than all the promised joy of the next." As interpreted by Hillel, at whose feet Jesus sat as a student, the Ten Commandments, the most important couple of hundred words in any man's language, mean simply, "Whatever is hateful unto thee, do it not unto thy fellow; this is the whole Torah." It might be added, this is the complete Golden Rule, as well.

The typical Ghetto denizen was a bookworm. The Jews have a special name for him, Yosheb Oholim. The 1930 United States Census records the illiteracy of

Jewish immigrants at 26% as against 40% of other immigrants.

Dr. Alexander Marx who recently hazarded a survey of the very dim Middle Ages period is quite convinced that "the greater part of the scientific achievements of the Jew is still buried in libraries all over the world." Some day a scholar equipped with a thorough knowledge of Hebrew and conversant with the exact sciences might be able accurately to identify these shadowy medieval Jews through their complicated cumbrous proper names, as this Librarian of the Jewish Theological Seminary hopes.

The digging, however, will have to be done in the libraries and the universities of other races, for the Jew, as it must by now be clear, had neither academic depositaries for his own archives, if any, nor academic officials to preserve them. And only within the last couple of hundred years has he had access to those of the nations in which he happened to be then abiding. Browning puts into the mouth of Rabbi Ben Ezra, another of the Jewish beacons that pierced this dark period, what was in the mind of every bearded Sage of the Middle Ages:

*Then, welcome each rebuff
That turns earth's smoothness rough,
Each sting that bids now sit, now stand, but go!
Be our joys three parts pain!
Strive, and hold cheap the strain;
Learn, nor account the pang; dare, never grudge
the throe.*

A GREAT JEWISH INVENTION



If Loeb, Metchnikoff, Ehrlich (and today Professor Fred Koch), tried to unravel the origins of life in their laboratories, the long line of Holy Men of Bible times tried to make a science out of everyday living. According to Einstein, social justice, mutual aid, tolerance, constitute the Jewish Trinity. Christianity might even be looked upon, without violence to historic and psychological facts, as a Jewish invention in religion, as conscience might be said to have first become self-conscious in the Hebrew Decalogue. It is more than likely that Joshua of Nazareth who brought the "good news," may never even have heard the name that history has bestowed on him, for "Jesus" is a Greek word, a language with which he was entirely unacquainted. As all other Galileans, he spoke the tongue of his native province, an impure guttural patois that was the despair of the finicky Jerusalem Jews.

This Aramaic dialect is used today by the Syrian Christians who claim possession, according to Amen Rihani, of the oldest Aramaic version of the Bible. Both the character and the authorship of this rendition of scripture have been established by Dr. Joshua Bloch, editor, *Journal of Jewish Bibliography*. *Peshitta*, as this Bible interpretation is called, proves the antiquity of this faith to be greater than any other

Christian sect, according to Syrian Christians. Julian the Apostate never referred to Jesus as anything else than "the Galilean." On his death bed he is said to have exclaimed, "Galilean, thou hast conquered!" During his lifetime he established an ordinance requiring that no one should be permitted to address a Christian by any other name than "Galilean."

During the first fifty years of its existence, the most critical period for any religious cult, Christianity was recruited from Jews and not until the sixth century did Joshua's Greek title ("Christ" is not a proper name, but the Greek equivalent for the Hebrew title, "the Messiah,") date the modern era as distinguished from the ancient world. In his monkish zeal to create a religious memento, Dionysius Exiguus of Scythia really only succeeded in creating an arbitrary demarcation of historic time, as George H. Warner says, that has made it necessary for historians to start with historic confusion on their side. Contemporary paganism never considered the new faith to be anything but another Jewish movement, something like that of the Essenes which was another Jewish sect of which John the Baptist was a member. To the Romans, The Man of Galilee, Jesus, was "The King of the Jews" even in death.

Matthew traces Jesus' Jewish ancestry back to David, the Lion of Judah, so that his veins contained the bluest of Jewish blue blood. Luke reports that Jesus was enrolled on the tax lists of Quirinus, Governor of Syria, along with the rest of his family, as a Jew. Paul's aspirations were Jewish and the Galilean

himself, who had preached in the Capernaum Synagogue, can only be understood as an answer to all the Jewish expectations of a thousand years.

Joseph was a Jew. So was Jesus' mother, Mary. So were his brothers. So were his sisters. So were the Apostles. Jesus lived with Jews, went to a Jewish school, lived in a Jewish province. He got his very name, Joshua, from the son of Nun, who had succeeded Moses as leader of the Israelites and the book in the Old Testament bearing his name is now regarded as the necessary supplement to the Pentateuch. One of the Hebrew meanings of the name Joshua, is "Lord, the Savior." According to Cabalistic interpretations of the Scriptures, it was Joshua to whom Moses transmitted the Law from Mount Sinai, and Joshua in turn, is alleged to have transmitted it to the elders.

Jesus himself never made any reference to anything but Jewish prophecy, Jewish ethical laws. His Apostles, too, as the Acts and the Epistles amply indicate, cast many a backward glance at the faith of their fathers. "We are all Semites, spiritually," Pope Pius XI recently broadcast to the world. It was no rabbi, no Semite who said, "The Jew has a right to say to the Christian, 'Thou art a Jew with a little alloy,'" but the famous French Catholic theologian, Ernest Renan.

Renan observes that the very fabric of Christian theology, Europe's ideas about God and man, and his destiny, its philosophy of history, are each and every one of them a precious legacy of Jewish genius. And the whole Occident is so steeped in Semitic intel-

lectual ideas and values that it has never quite been able to comprehend the more formless Mysticism of Asia against which Moses' laws stand, the first defense.

HERE AND NOW KNOWLEDGE



An eminently practical race, the Jews demanded that their intellectual leaders be practical men. Add to this temperamental fact the psychological circumstance of their instinctive aversion to everything irrational, everything theoretical in thought and thinking, and it is easy to understand why their intellectual talents just naturally went to graze in fields of facts. Unlike those of the other ancients, the academies of the Jews were not hidden by ivy, not remote from those whom they wanted to serve, not aloof from the cares and concerns of the toilers, but intimate, organic parts of their daily lives.

Everything that the Jewish Sages did, everything that they said, was to aid their fellow men. They themselves had been taught by their own elders, and they had read in the Book that "The people do perish for lack of knowledge." Even the religious holidays of the Jews, even their holy feasts, are part and parcel of the here and now, practical means of perpetuating and benefiting by their historic experiences. The Greek philosophers, on the other hand, were preoccupied with isolating their science from the service of mankind. The Hindu mystics before them kept their visions a precious thing apart from the poor depressed chandala.

Greek sculptors in the Periclean Age made great

statues in stone but as Heine remarked, Moses created great statues in flesh. Man is the chief concern of the Bible. This might account for the fact that it is "history's best seller." Long before Julius Streicher railed against the Bible because of its "untrue Jewish hero tales," Ernest Sutherland Bates more correctly commented, "There are no Homeric heroes in it, Abraham is brave and cowardly by turns, Jacob is loyal and a trickster, Joseph indulges in the vainglorious babblings of youth, and the noble-hearted David, under the influence of lust, will cause the murder of a devoted servitor; Solomon's wisdom won't keep him from debauchery." "Hero worship," as Heywood Broun has pointed out, "is especially forbidden in one of the ten commandments."

Prophets did many other things besides prophesying. They were interested in the kind of knowledge that could be put to use, wisdom. Benjamin N. Cardozo, late Associate Justice of the United States Supreme Court, was concerned mainly with legal justice that "marched," to quote a favorite word and expression of Napoleon. Solomon the Wise and Job before him, and Jeremiah before Plato, never tired telling their people that wisdom was "more precious than rubies."

In Hebrew, the word "wisdom," which is stressed not only in *The Talmud* and in the *Cabala*, but also in the teachings of the rabbis, has a most wide application. "Wisdom which is a much higher capacity than intelligence," comments the Rev. Henry Sloane

Coffin, president of the Union Theological Seminary, "is a combination of brains and faithfulness."

The Jews were enjoined to rest on the Sabbath, to eat their bread in the sweat of their brows. They were warned, however, that they could not live by bread alone. Practical the Wise Men of Bible times were, but they made no charge for their wisdom. Neither did these inspired writers of the Old Testament write for the market, nor did they desire any recognition for themselves, for their very names, for the most part, are still unknown to us.

Dr. Cyrus Adler, many times President of the American Jewish Committee, who has just died, in an article *Religion and Character Building* in the *American Hebrew*, states, "In Israel religion and education were inseparable and both were for the purpose of character building. Instruction consisted of study in the Bible, in *The Talmud*, the Jewish Codes of Laws and their ethical precepts and practices. The words 'synagogue' and 'school' were interchangeable and the educational process was intended to force upon the minds of young and old that Judaism, besides being an historic religion, with laws and precepts, was a way of life which entered into every act of life."

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MODERN PHYSICS AND THE BIBLE



The new physics, the latest archeological discoveries, all point unerringly to the possibility that the symbolical account of creation as given in Genesis may not be as far away from truth as was assumed by the natural evolutionists of the last two generations. Theoretical physics does not, by any means, see eye to eye today with the scientific stalwarts of fifty years ago who thought they had destroyed religion.

The prosaic ideas of the Evolutionists concerning the nature of matter have become as antediluvian as Noah's Ark itself. Matter no longer is considered the dead, inert, immovable bulk the scientific lumberjacks of the mid-Victorian period believed it to be. Intent on destroying Biblical truth these fictionists treated Nature as if it were some dark attic cluttered up with a lot of dirty trunks.

Mass and bulk are no longer accepted by scientists as definitions of or as synonyms for Nature. Light, not darkness, is the new reality of the new science. Light is truth, proclaims Professor Millikan, along with other contemporary physicists. Thousands of years before the Evolutionists, Isaiah had said "... , those that walked in darkness have seen a great light." The leading European authority on cosmic rays was Dr. Bruno Rossi, formerly professor, Physical Insti-

tute, Padua, Italy, now connected with the University of Chicago.

Modern physics has squeezed the earth out of matter. The new science, in actual scientific fact, has presented man with a galaxy of symbols that make him appear God-like in the heroic scaffoldings he is rearing daily to the cosmic mysteries.

Professor Hans Albrecht Bethe, Cornell University, said by *Time* magazine to be "one of Nazi Germany's greatest gifts to the United States," although only thirty-three years of age, "is making it hard for the physicists and the physics journals to keep up with him." He is now at work trying to determine the function in the atom's nucleus of a particle called the "maestron," the binding force, in his opinion, that prevents the universe from exploding into formless clouds of atomic dust. Last year this young Jewish scientist was "hailed by astrophysicists for figuring out that carbon must be the stuff that enables the sun to turn fragments of hydrogen atoms into sunshine," says this news weekly.

Eddington, Russell and Jeans, the greatest, perhaps of contemporary physicists, tacitly agree that in the light of the dazzling symbols of theoretical physics, Moses' Cosmogony seems quite as good, quite as scientific as any other. Scientists today actually are vying with one another in paying tribute to the inspired pronouncements contained in the first book of the Old Testament. One after another they are sneaking into the rear door of Genesis. "God is still on the job," Millikan states, speaking for many of them. The

literal definition of Israel is, "God persists," "God prevails."

Extraordinary as it may seem, Moses seems to have come quite as close to piercing the mystery of matter as has any modern physicist, just as the first words of Genesis, "the earth was without form and void," seem to have anticipated the very last reaches of our present day science. Compare, for example, modern scientists' comments on electrons, those electrically-charged particles of the atom, with the great Law-giver's first reference to matter.

All that our physicists can tell us about the nature of matter from their wonderful photographic studies of it is that electrons seem to be floating around in the pearly glow of the plates "in forbidden states." Moses said something to the same effect four thousand years ago. And he said it more simply with two Hebrew words, the first "tohu," meaning "unformed," the second "bohu" meaning "void," seeming.

The ancient Jew lived close to nature even if he never troubled to codify it. "There is no logical path to the universal elementary laws from which the Cosmos can be built by deduction, and to arrive at them is the supreme test of the physical. Only intuition resting on a sympathetic understanding of experience can reach them." The foregoing, while quoted from Einstein's last published work, expresses what was in the mind and heart of every Jew of Bible times.

It is not intended to imply, however, that Scripture is without any mention of scientific procedures. It contains many references in it to measurements, geo-

metric principles, calendar calculations, information about seeds, their proper planting, etc. Professor Richard T. Cox, Department of Physics, New York University, writing about "The man with the measuring rod," says, "Ezekiel saw in a vision the ideal scientist on a high mountain in Israel, two thousand years ago . . . a man whose appearance was like the appearance of brass, with a line of flax in his hand and a measuring reed, and he stood in the gate . . . and he beheld a well on the outside of the house round about, and in the man's hand a measuring rod of six cubits long, of a cubit and a handbreadth each." It was Ezekiel, too, not King John, who probably established the standard yard.

The Jewish religion is not by any means wrenched away from natural law for as James Huston Well says, "The Bible needs interpretation by Nature and Nature by it." The faith of these old Jews is really Mother Nature's True Confession Story. Consider that the word "earth" is the most recurrent word in the Old Testament to realize that there was no denial of it in their faith. The Hebrew word for man, "Adam," literally means, "It comes from the earth," symbolically, of course. "The Lord God formed man of the dust—and breathed into his nostrils the breath of life." God, himself, is symbolized as "the Rock, his work is perfect," in Deuteronomy.

With the arrival of the Prophets, chance is taken out of nature, superstition and idolatry have reached their historic end. "In the beginning God created both heaven and earth." The creator is the Lawgiver of the

Universe, having decreed that everything is answerable to his moral laws, his moral order. Even the Psalmists celebrated in their beautiful praise-songs the fixed firmament of Jehovah, "The Heavens declare thy glory." These spiritual forces, for so they are conceived by the Jews to be, are as inexorable in their operation as are those centrifugal and centripetal forces that stabilize the heavenly bodies and keep the zodiac safe in its starry track.

The ancient prophets were completely absorbed in their task of taking man away from the worship of his many Gods. Judaism was born, a spiritual protest against any and all forms of nature worship, star cults, demon worship, so popular with the Babylonians, animal worship so popular with the Egyptians, Empire worship so popular with the Romans, the worship of force, so popular with all the ancients.

The Jewish Sages of old wanted to impose upon the natural man, lost in the "maddening mask of multiplicity," (a quotation from a Jewish professor of philosophy, H. M. Kallen), the code of the one true God. In their zeal to pierce the infinite these Holy men may have turned their reverent backs on "the state of nature," so dear to ancient Paganism and modern fact gatherers. It was not, however, that they loved Mother Nature less, but Jehovah's moral law more. "Earth changes," Rabbi Ben Ezra says in Browning's immortal poem of that same name, "but thy soul and God stand sure." These Wise Men knew this instinctively.

The inspired words of the many Biblical characters

are yet the bread of life for millions, whereas the science of the ancient Greeks and the ancient Romans and the Egyptians have become part of a period, with an historic interest only. Many devout souls throughout the ages, sorely tried by life, have been encouraged by the comforting words of the Psalms and the Proverbs. "God's book because it is man's book," according to Arthur Henry Hallam.

That the ancient Jews may have known more about the natural cosmos than they cared to tell about, is hinted at in the fact that Isaiah and Job before him saw the earth a globe, an idea that is also indicated in Proverbs. Solomon the Wise, in words as fresh and as modern as if they were being quoted from a lecture given but yesterday by Albert Einstein at the Institute for Advanced Study in Princeton, New Jersey, said thousands of years ago, "Time is a very shadow that passeth."

The great prophet Job might even have been anticipating the discoveries of the famous scientist, Hertz, the godfather of the Hertzian waves, with his query, "Canst thou send lightnings, that they may go, and say unto thee, here we are?" That Ezekiel anticipated the discovery of electricity is shown by his prophetic words, "and I saw the colour of electrum, as the appearance of fire about it." If it seems a little far-fetched to link the names of Hertz and Job, remember that Christopher Columbus never, according to his own words, laid his discovery of the new world to science but to his interpretations of the prophecies of Isaiah, the greatest of the Hebrew prophets whose

career as no other's was bound up with the fortunes of Jerusalem. And the fourth book of Ezra was as well-known to Columbus as was Abraham Ben Ezra's book on astronomy, his constant companion.

All inventions—all discoveries—are merely a continuation, according to the Jews, of God's process of creation. They have always taken it for granted that Solomon knew what he was talking about when he said, "There is nothing new under the sun." All creation—all scientific discovery belong to those acts of creation which are gradually being unfolded by "the Lord of wonders, who in his goodness reneweth the creation every day continually." These very words, profound and reverent, quoted from the Jewish Daily Prayer Book, are said by every pious Jew throughout the world in his Morning Service.

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IN HIS MARROW



With the Jews, the word "law" comes next to "nature" in popularity as any Bible Concordance will show. To them, ancient scripture was always seen in the light of a system of jurisprudence and the main duty of the Scribes was to interpret moral law to the people. Desecration of the Scrolls was a Jew's idea of the sacrilegious. The more important half of The *Talmud* deals with the law exclusively. The *Talmud* might, in very fact, be defined as a depositary of Jewish Law and Lore. Even the well-known philanthropies of the Jews are founded on law, not charity, for the word "charity" is not to be found in the Old Testament, the law of "justice to the brethren." On his sixtieth birthday, Einstein put *justice* in dealing with our fellow men, "above intelligence and inventions."

Law is in the marrow of the Jews, it is the marrow of the Jews, spiritually. The only explanation that Supreme Court Justice Felix Frankfurter, called by many "Socrates of the law," can give as to his choice of a profession is that he was born with an instinct for law. For that matter, every other Jewish lad's ambition is to study civil law, to become an attorney or a judge. Two other Jews have ascended the highest legal tribunal of the United States, Brandeis and the recently deceased Cardozo, who left his estate to

maintaining a chair in legal philosophy in Columbia University School of Law. Frankfurter was connected with the Law Department of Harvard University, where he was looked upon as the chief representative of the philosophy of law expounded by the late Chief Justice Holmes.

Rufus Isaacs, or Lord Reading, as he later became, was Chief Justice of England. Messieurs Cahen and Torres in France were noted jurists as were Jellinek, Preuss and Mendelssohn-Bartoldi in Germany. The former presiding Judge of the Supreme Court of Italy was Ludovico Mortara, Minister of Justice. Professor Vivante, the compiler of Italy's Commercial Code, and Federico Cammeo who drafted the Conciliation Treaty between the Vatican and Catholic Italy, are both Jews.

Professor Oppenheimer was the greatest Oxford authority on international law. On his death he was succeeded by Professor Steinhardt, a nephew of Governor Lehman of New York State. Tobias Asser was awarded the Nobel prize in 1911 for his *Outlines of International Law*. This world-famous jurist is also author of *The Codification of International Law*, the founder of the Institute of International Law and the judge who presided over The Hague Tribunal. David Louis Podell is a noted authority on anti-trust legislation.

Of all the Mystics of history, Jewish Mystics are the only ones not in revolt to law. Even the Hassids and the Cabalists never attack it. Neither did Philo, nor Spinoza nor Maimonides, three of the world's

greatest Mystics. Of what other religion, of what other race, can this be said? In fact, Maimonides is known to most Jews as the Great Codifier!

Writing about *The Influence of Judaism on Western Law*, Professor Nathan Isaacs, Harvard University, believes that "the influence of Judaism on western laws" has not been sufficiently evaluated. "Their living law is scattered in some fifteen hundred printed volumes of *responsa* and endless manuscripts, scarcely indexed in the codes and commentaries," he says. "When this storehouse is opened through the progressive work of scholars, encouraged by a little understanding among men, and perhaps stimulated by the experiment in Palestine, a new chapter may be added to the influence of Judaism on western law."

It is regrettable, in a way, that Professor Isaacs didn't go farther. He was on such an excellent philosophical trail, one that might have brought scholarship to an understanding of one of history's greatest paradoxes, the survival of the Jews.

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PRESERVERS OF THE VISION



The Jews have not survived because of their "race-fixedness," as anti-Semitism repeatedly has charged, nor because they are, as friendly preachers frequently aver in their sermons, either "preternatural," or "supernatural," or "superhuman." Neither is it because they were "the chosen people."

The children of Israel are the "eternal contemporaries" of history not because they were "chosen," but because they themselves made the choice, a decision that set them apart from all those other races whose priests thought they had seen God "face to face."

They instinctively sensed that their proverb, "Where there is no vision the people perish," was but a half truth. Had not the ancient Egyptians and the ancient Hindus plenty of visions? Had not their priests also claimed to have seen God? Yet both these races passed out of history, lost step with time. Why? It is because they did not choose, as had the Israelites, to crystallize their vision into some practical form so that the natural man could keep his feet on earth. They became instead "blasted with ecstasy." Gazing too long on God's face their "tenements of clay" became "o'er informed," to paraphrase Shakespeare's Hamlet. Adam, the name of the first man, according to the Jews, comes from "adamah," cultivable soil.

The Jews put the vision to work, they made a code

of daily actions out of Moses' spiritual revelations. These practical men never became blinded to the faces of their suffering "brethren," a word the Hindu and Egyptian Mystics never had heard and wouldn't understand if they had. The "fine frenzy" of the Jewish prophets never made them forget for a moment their social relationships to man which they put on a par with men's relationship to God. Instead, they set about to insure the vision in a moral code, rearing a sort of spiritual Chinese Wall against which all the futile emotionalism of the Orient railed in vain.

The code of the Jew might have become rigid, the Rabbis may have become Chinese, in the monotony of their approach to these subtle things, yet the very inflexibility of the Jewish laws, the very "stiff-neckedness" of these bearded expounders of them, are the very things that have preserved for western civilization the greatest spiritual gift perhaps vouchsafed to man below.

Nothing other than this so-called "materialism" of the Jews could possibly have kept alive the unearthly light that Moses saw in the bush. When the Talmudists come to understand this, they will also understand that even the literal-minded Karaites have done their bit to preserve for men the vision of God.

With Moses moral and natural law are one and the same thing. "Thou shalt keep his commandments, that it may go well with thee, and with thy children after thee, that thou mayest prolong thy days upon the earth," is a simplified exposition of scientific truth

in the language of Biblical prophecy. These commandments which he uttered as God's law, were for the purpose of getting his people to live in absolute agreement with natural law, not to make miserable the children of Israel whom he loved.

When the great Lawgiver warned the Israelites that their children would suffer for the sins of their fathers "even unto the fourth generation," he was only endeavoring to help a simple agricultural people facing the promised land to understand the scientific fact that nature exacts penalties whenever and wherever her laws are broken.

According to Kant, the German philosopher, the Jewish religion quite completely concerns itself with the observance of law. Dr. S. M. Melamed has since pointed out that the Jewish law is the only legal code that has flourished throughout the ages without a civil state to enforce it, an army, a navy, or even a police force. "The rabbinic law is the most remarkable phenomenon in legal history," he says, "and has no analogy in any people, in any period of history." Both Isaiah and Micah, Old Testament prophets, have said, "Out of Zion shall come forth the Law."

Law, nothing else, is what holds together the Jews' ethical doctrines, cements their moral principles, for there is no equivalent in the Hebrew language for the word "religion." According to Jewish tradition, God himself spends most of his time studying The Torah. The giving of the law is considered by the Jews to be the greatest revelation God has made of his pur-

poses toward man and the universe. Without these workable, practical, everyday maxims, the light that descended on Mount Sinai might have descended into hell.

THE END

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